1.0 INTRODUCTION

On December 31, 1992, the U.S. Environmental Protection Agency (EPA) proposed the Hazardous Organic National Emission Standard for Hazardous Air Pollutants (NESHAP) for process units in the synthetic organic chemical manufacturing industry (SOCMI) under section 112(d) of the Clean Air Act (57 FR 62608). Public comments were requested on the proposed standard and comment letters were received from industry representatives, governmental entities, environmental groups, and private citizens. Two public hearings were held, one in Research Triangle Park (RTP), North Carolina, on February 25, 1993, and another in Baton Rouge, Louisiana, on March 18, 1993. Both hearings were open to the public and 5 persons in RTP and 45 persons in Baton Rouge presented oral testimony on the proposed NESHAP.

On August 11, 1993, the General Provisions for part 63 (58 FR 42760) were proposed. In order to allow the public to comment on how the General Provisions relate to the Hazardous Organic NESHAP (HON), a supplemental notice (October 15, 1993; 58 FR 53478) was published. Public comments were requested on the overlap between the General Provisions and the HON and on some specific emissions averaging issues. Comment letters regarding the supplemental notice were received from 80 commenters.

The written comments that were submitted and verbal comments made at the public hearings regarding the technical and policy issues associated with process vents, storage vessels, transfer operations, and equipment leaks in the proposed rule and supplemental notice, along with responses to these comments, are summarized in the following chapters. The comments that were submitted regarding process vents are summarized in chapter 2.0 and the comments regarding storage vessels are summarized in chapter 3.0. The comments that were submitted regarding transfer operations and equipment leaks are summarized in chapters 4.0 and 5.0, respectively. The summary of comments and responses serves as the basis for the revisions made to the NESHAP between proposal and promulgation.

Within each chapter, the comments are organized into sections such as: emission control technology; impacts analysis; applicability and Group 1/Group 2 determination; compliance demonstrations; recordkeeping and reporting; wording of the provisions; and miscellaneous. The emission control technology section focuses on comments regarding the applicability and performance of the reference control technologies. The impacts analysis section addresses comments concerning cost analysis, emissions estimates, other environmental impacts, and energy impacts. The applicability and Group 1/Group 2 determination section addresses comments on the emission points covered by the NESHAP as well as which emission points should be required to apply control. The compliance demonstrations section focuses on performance testing, design evaluations, inspections, and monitoring. The reporting and recordkeeping section addresses comments relating to the specific emission sources. General recordkeeping and reporting issues are presented in BID Volume 2E. The wording of the provisions section addresses comments concerning clarification or consistency of the NESHAP requirements and definitions, and the miscellaneous section covers comments which did not fit in the other sections.

2.0 PROCESS VENTS

2.1 EMISSION CONTROL TECHNOLOGY

Comment: One commenter (A-90-19: IV-D-32) supports the RCT sited for process vents, but requested that further consideration be given to the requirements of vents with existing control devices with a DRE between 95 and 98 percent. Two commenters (A-90-19: IV-D-32; and IV-D-112) suggested that facilities with catalytic incinerators achieving 95 percent DRE be allowed to continue to operate for a period of time (e.g., 10 years) or until replacement is necessary. Another commenter (A-90-19: IV-D-97) advocated a 95 percent control for existing facilities for a period of 10 years. The commenter (A-90-19: IV-D-32) acknowledged the possibility of using emissions averaging to make up the short fall between 95 percent and 98 percent control, but claimed that emissions averaging may not be a viable option, especially for a small facility, and alternatives should therefore be made available.

Response: Existing process vent control devices that are used to comply with the distillation or air oxidation NSPS or State regulations in Texas, California, Illinois, and Louisiana are required to have a removal efficiency of 98 percent. The Ohio regulation also requires 98 percent control of all air oxidation vents that are subject to the regulation. Therefore, the EPA has concluded that there are few existing control devices for process vents that are achieving a control efficiency less than 98 percent.

For those existing process vent control devices that are achieving less than 98 percent, the EPA has provided emissions averaging as an alternative compliance option. An emissions credit from control of another emission point in the facility can be used to offset the emission debit generated by the use of a process vent control device with less than 98 percent efficiency. For small production facilities, the magnitude of the emissions debit generated by controlling process vents to efficiencies between 95 and 98 percent should be small. Therefore, emissions averaging is also a viable option for these facilities.

Comment: One commenter (A-90-19: IV-D-32) stated that the EPA has not demonstrated that RCT achieves 98 percent control for each HAP and that the 98 percent level of control appears to be based only on the VOC removal levels used in past NSPS. One commenter (A-90-19: IV-D-70) supported the use of thermal incineration for control of process vents and other streams where reasonable.

One commenter (A-90-19: IV-D-107) agreed that the proposed emission limits are achievable and should be promulgated as part of the final rule. Two commenters (A-90-19: IV-D-70; IV-D-99) stated that thermal incinerators can provide control greater than 98 percent DRE if properly operated, while another commenter (A-90-19: IV-D-90) requested that a 99.9 percent DRE be required for all combustion devices.

Response: The EPA would first like to reiterate that control by thermal oxidation is not specifically required by the HON process vents provisions. Thermal oxidation is simply the RCT whose performance level must be met by any controls intended to comply with the HON process vents provisions. The commenter correctly states that 98 percent control is based on studies used to determine VOC control levels for past NSPS and has not been proven by testing for each individual HAP. These two issues do not weaken the EPA's decision for 98 percent control of HAP's for the following reasons: (1) nearly all organic HAP's are also VOC; and (2) HON compliance is not based upon control of each individual HAP. Compliance with the HON may be based upon either total organic HAP or TOC. Clearly, a control device might have a higher level of control for one particular HAP than for another, but compliance is based on the overall reduction of total organic HAP or TOC from an emission point.

The 98 percent level of control was chosen because it has been shown to be uniformly achievable by combustion devices. As stated earlier, test data to demonstrate efficiency in a thermal incinerator is not available for each individual HAP. However, the efficiency conclusions for a thermal incinerator (98 percent DRE or an outlet concentration of 20 ppmv) were based on test data using the most difficult VOC compounds to combust, which included several HAP's. Therefore, it was concluded that the 98-percent reduction can be achieved for total HAP (memorandum from David Mascone, EPA/CMS, to Jack Farmer, EPA/CPB, "Thermal Incinerator Performance for NSPS, Addendum," July 1990, Docket Number IV-90-19: IV-B-1). The EPA recognized that thermal incineration may achieve greater than 98 percent DRE, but test data show that levels greater than 98 percent may not be uniformly achievable.

Comment: Two commenters (A-90-19: IV-D-90; IV-D-100) claimed that by focusing technical analysis of controls on combustion, the EPA has limited the flexibility in applying alternative control technologies that are cost effective, including pollution prevention.

Response: The technical analyses performed focused on control by combustion because combustion is considered to be the most universally applicable control for process vent emissions, and accurate information was available for estimating costs and impacts. This in no way limits the application of alternative controls provided that the alternative control achieves the same level of control as combustion: 98 percent emission reduction or 20 ppmv HAP at exit of device. Pollution prevention is in fact encouraged by the EPA since it recovers valuable resources while reducing emissions. From this perspective, pollution prevention may be viewed in the same light as recovery devices such as condensers or carbon adsorbers. If a pollution prevention technique is employed within a facility's control strategy, it must alter the characteristics of a Group 1 stream such that the stream is then classified as Group 2. If this can not be achieved by pollution prevention alone, then either emissions averaging or an add-on control device must be used in addition to the pollution prevention technique.

Comment: One commenter (A-90-19: IV-D-113) stated that the requirements for demonstration of alternative control technology are both burdensome and unnecessary if a technology meets a specified treatment objective. The commenter (A-90-19: IV-D-113) recommended that the EPA establish a treatment threshold for halogen removal in the process vents section of the HON, but not dictate a specific technology to achieve it.

Response: The process vent provisions are expressed as a HAP or TOC percent reduction or concentration limit, and do not require use of a specific technology. The control technology must be demonstrated to achieve the 98 percent reduction or a concentration below 20 ppmv during the performance testing to ensure it can meet this level. If the commenter's alternative technology is one where performance testing at the inlet and outlet would be infeasible, but there is evidence that it achieves equivalent control, then the commenter can apply for approval of the alternative technology under §63.6(g) of the General Provisions. This process includes Agency Review and a Federal Register notice.

However, because the proposed standard for halogenated streams in §63.114(c) was written as an equipment standard (scrubber following a combustor) use of any other technology would have required an application and Federal Register notice. Therefore, the final rule is being revised to use an emission limit (percent reduction or mass limit) format instead of requiring a scrubber. This will allow use of technologies other than a scrubber to meet the halogen limits.

Comment: One commenter (A-90-19: IV-D-50) proposed that an "Alternate Means" provision be added to allow application of control technology less stringent than MACT if the facility can demonstrate that thermal oxidation is unsafe and that applicable alternative technology cannot achieve a level of control equivalent to RCT.

Response: The EPA again points out that thermal incineration is not exclusively required by the HON regulation. Thermal incineration provides the basis for the technical analyses and for comparisons to other control technologies. Possible alternatives include use of recovery devices to increase the TRE to greater than 1.0, or emissions averaging.

Comment: One commenter (A-90-19: IV-D-34) suggested that the incinerator definition be modified so that it would include regenerative incinerators.

Response: The purpose of the definition is to distinguish between incinerators and boilers. The incineration definition will be modified to include the following sentence provided by the commenter (A-90-19: IV-D-34) at the end of the definition to allow the use of regenerative incinerators:

> "The above energy recovery section limitation does not apply to an energy recovery section used solely to preheat the incoming vent stream or combustion air."

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) stated that because many boilers and process heaters employ staged combustion, which may lower the overall temperature and lengthen the flame zone of the combustion section, the vented VOHAP stream should be introduced into the combustion flame zone as near to the burner fuel inlet as possible while maintaining good mixing.

One commenter (A-90-19: IV-D-86) considered the definition of flame zone too restrictive and suggested that a residence time requirement be established as an alternative.

Response: It was determined that as long as the process vent stream passes through the flame zone, the temperature and residence time achieve the required level of combustion efficiency. The EPA references "Reactor Processes in the Synthetic Organic Chemical Manufacturing Industry - Background Information for Promulgated Standards," EPA-450/3-90-016b, March 1993 to support the decision. The definition of flame zone in the regulation was written broadly enough to include various types of boiler configurations. As proposed, the definition allows the stream to be introduced as near to the burner fuel inlet as possible while maintaining good mixing. However, in certain configurations, it may be too restrictive to adopt these suggested requirements into the definition, especially since another commenter thought that the proposed definition of flame zone was too restrictive. Furthermore, such wording is very subjective and would therefore be difficult to enforce. The EPA determined that the requirement that the vent stream be introduced into the flame zone was a simpler requirement to follow than establishing and measuring the residence time. For these reasons, the definition of flame zone remains unchanged.

Comment: One commenter (A-90-19: IV-D-69) suggested that a vent stream be allowed to be introduced with secondary combustion air when required by compatibility or safety reasons if compliance with the 98 percent DRE or 20 ppmv exit concentration requirement is maintained.

Response: The proposed and final process vent provisions permit a vent stream or streams to be introduced with secondary combustion air if a facility so chooses. For boilers with heat input capacities less than 44 MW or if the vent stream is introduced with the combustion air, a performance test and more monitoring, reporting, and recordkeeping are required than if the stream were introduced as or with primary fuel.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-34 and IV-G-4) requested that flares be allowed as the primary control device for halogenated streams, if the aggregated halogen content at the flame tip under routine operating conditions would not exceed 4 lb/hr as halogen atoms. The commenters (A-90-19: IV-D-32; IV-D-34 and IV-G-4) pointed out that such a change would be consistent with some existing State regulations. For example, one commenter (A-90-19: IV-D-32) said TACB Standard Exemption 80 exempts from new source review up to 0.45 Kg/yr (1.0 lb/hr) of HCl emissions. Another commenter (A-90-19: IV-D-88) cited a RCRA limitation on hazardous waste incinerators in proposing that a 4 lb/hr halogen emission limit be applicable to any combustion device. Another commenter (A-90-19: IV-D-32) said that existing controls in similar facilities were not considered in selecting the halogen cutoff level. One commenter (A-90-19: IV-D-34 and IV-G-4) stated that a flare is the only practically applicable control device for streams with highly variable flow and heat content, regardless of halogen content.

One commenter (A-90-19: IV-D-113) cautioned that experience with scrubbing and other halogen controls has demonstrated that the required 99 percent removal efficiency is extremely prescriptive for many halogenated process vents, especially those at or near the 200 ppmv threshold and those containing elemental bromine or chlorine (Br_2 or Cl_2). One commenter (A-90-19: IV-G-4) stated that Texas regulations require halogen control devices with 95-percent removal efficiency. One commenter (A-90-19: IV-D-113) further stated that the 0.5 mg/Nm^3 (mg/scm) halogen emission limit is ten times more stringent than the most stringent requirement they are aware of. The commenter (A-90-19: IV-D-113) proposed that the emissions limit be revised to 5 mg/Nm^3 (mg/scm) to provide a limit that is technically achievable and provide consistency between European and U. S. standards so as to not hinder competitiveness. One commenter (A-90-19: IV-D-88) questioned the validity of the 0.5 mg/scm halogen emission limit because it was derived from the halogen detection limit rather than on a consideration of the characteristics of waste streams.

Response: The EPA agrees with the commenters that a mass limit for defining halogen streams will provide greater flexibility for compliance without reducing the stringency of the rule. Based on an analysis of scrubber performance reported in the ethylene dichlorine questionnaire responses supplied by SOCMI facilities, 11 of the 12 scrubbers were achieving a 99-percent reduction of hydrogen chloride or a total halogen mass flow rate below 0.45 kg/hr (1.0 lb/hr). The median mass emission rate exiting those scrubbers was about 0.45 kg/hr of total HCl and Cl_2. Based on the available data, it is not demonstrated that values lower than that would be uniformly achievable. The commenter (A-90-19: IV-D-32) said TACB has a 0.45 kg/hr exemption. Therefore, the rule will be revised to define a halogen stream as a stream containing 0.45 kg/hr or greater of halogen atoms and require a 99-percent reduction of total halogen atoms or reduce the halogen emissions to less than 0.45 kg/hr.

However, an allowance will be made for existing scrubbers. As indicated by the questionnaire responses and comments, there are some SOCMI units that currently have scrubbers that achieve between 95- and 99-percent reduction and that would not achieve a 99-percent reduction or 0.45 kg/hr emission rate. The EPA's national cost estimate did not include costs to replace existing scrubbers. The emission reduction obtained from replacing a 95-percent efficient scrubber with a 99-percent efficient scrubber would be small. Therefore, the final rule will allow sources that had halogen control devices as of proposal of the HON to achieve 95-percent reduction or an emission rate below 0.45 kg/hr.

Comment: One commenter (A-90-19: IV-D-88) questioned the appropriateness of requiring a scrubber on process vents with halogen emissions less than some combustion sources. The commenter (A-90-19: IV-D-88) stated that a coal-fired boiler exhaust may contain 70 ppmv HCl or more.

Response: The EPA's decision to require a combustor and scrubber on a process vent stream that has halogen emissions less than some combustion sources was based on the results of analyses of cost effectiveness of the combustor/scrubber combination. The TRE index value is a measure of cost effectiveness of control and the TRE calculation for halogenated streams is based on application of a combustor followed by a scrubber. Halogenated process vent streams are required to be controlled only if they have TRE index values less than or equal to 1.0. For Group 1 streams (those with TRE $\leq$ 1.0), application of a combustor and a scrubber is reasonable. The halogenated stream definition has been revised based on a mass emission rate, as described in previous responses.

Comment: One commenter (A-90-19: IV-D-34 and IV-G-4) suggested that provisions be made for flares to be used as a backup control device for halogenated streams while the primary control device is not operating, such as process start-up and shutdown and primary control device malfunction or maintenance.

Response: In the proposal regulation, an owner or operator is not allowed to use a flare as a primary control device on a halogenated vent stream. However, as provided in the proposed General Provisions found in subpart A, it may be possible to flare such a stream as an alternate, back-up control in case of start-up, shutdown, and malfunction of the primary control device. In order to gain approval for the use of flaring as an alternate control during a start-up, shutdown, and malfunction episode, the owner or operator would need to submit a start-up, shutdown, and malfunction plan as described in §63.6(e)(3). Each plan would be reviewed and approved on a site-specific basis to determine if it is an appropriate back-up plan in case of start-up, shutdown, and malfunction of the primary control device.

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) stated that flare operational standards and parameters and parameter monitoring should conform to 40 CFR 60.18.

Response: The EPA agrees with the commenter. The flare operational standards in 40 CFR 63.11(b) are the same as those in 40 CFR 60.18.

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) suggested that scrubbers used to control halogenated emission streams use either a continuous purge of the scrubbing fluid or maintain a two to ten day supply of scrubbing fluid on site. Additionally, the commenters (A-90-19: IV-D-70; IV-D-99) recommended that an extra scrubbing fluid pump and spare parts be required to be on hand at the site or available within one working day in order to minimize scrubber downtime.

Response: The EPA understands the commenters' concerns over control device downtime; however, the EPA has chosen not to include specific requirements in the HON such as those listed by the commenters. The potential for assessing non-compliance fees should provide sufficient incentive for owners or operators to keep scrubbers operating properly with timely maintenance.

Comment: One commenter (A-90-19: IV-D-77) suggested that a water scrubber should be allowed as a process vent control if it can be proven that the scrubber removes 98 percent of the organic HAP. The scrubber underflow would be sent to the plants wastewater treatment facility.

Response: This type of control is allowed under the HON process vents provisions, provided that the device demonstrates 98 percent control through performance testing, and it is not used as a product recovery device. (Product recovery devices are considered part of the chemical manufacturing process and can be used to achieve a TRE greater than 1.0, but cannot be used to comply with the 98 percent emission reduction provision.)

Comment: Four commenters (A-90-19: IV-D-70; IV-D-85; IV-D-99; IV-G-7) presented concerns about the inability of condensers and carbon adsorbers to meet RCT for process vents. Possible problems mentioned by the commenters (A-90-19: IV-D-70; IV-D-99) occur when condenser coils freeze up and when a mixture of compounds is controlled by a carbon adsorber.

Response: The EPA is aware of the fact that condensers and carbon adsorbers may not meet the 98 percent reduction/20 ppmv level of control required by the process vent provisions; however, for process vents, if these devices are used for product recovery, they are not considered to be control devices, and cannot be used to meet 98 percent reduction/20 ppmv provisions. As recovery devices, they can be used to maintain a level of performance such that the outlet stream from the device has a TRE greater than 1.0. A condenser or carbon adsorber applied to a storage vent or transfer rack must meet the RCT requirements for those source types, 95 percent or 98 percent control, respectively. In any case, if the device is used to comply with the 98 percent reduction or 20 ppmv level of control, the level of control of these devices must be proven through a performance test.

Comment: Three commenters (A-90-19: IV-D-70; IV-D-85; IV-D-99) also expressed concern over the use of ozone depleting chemicals in condensers applied as controls.

Response: The EPA is providing neither an incentive nor disincentive for the use of ozone depleting chemicals in condensers. The use of those chemicals is addressed under Title IV of the Act.

Comment: One commenter (A-90-19: IV-D-107) claimed that catalytic incineration is a proven, effective control technology already in use within the SOCMI as an effective VOC control and will prove to be an efficient HAP control as well; however, two commenters (A-90-19: IV-D-70; IV-D-99) pointed to problems with catalyst poisoning when catalytic incineration was used (see section 2.4.1).

Response: To meet the requirements of the regulation, any type of control device, including a catalytic incinerator, can be used as long as it reduces HAP emissions by 98 weight-percent or to a concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen, whichever is less stringent. To ensure proper operation of the selected control device, the regulation requires that ranges for certain parameters must be established in a performance test and then monitored periodically. When a catalytic incinerator is used to achieve compliance, a daily average temperature difference across the catalyst bed must be established based on the performance test and other documentation and reported in the NCS or established in the operating permit. Once the temperature difference is established, it must be measured continuously, and a daily average must be calculated each day. If the catalyst bed becomes poisoned, the temperature difference measured across the catalyst bed would likely be outside the range established in the NCS or the operating permit, indicating a problem.

2.2 IMPACTS ANALYSIS

2.2.1 Cost Analysis

Comment: Two commenters (A-90-19: IV-D-58; IV-D-62) argued that the incremental emissions reduction gained by exceeding the MACT floor is unjustified and that if the EPA regulates at a stringency above the floor requirements, the EPA must show that the cost of exceeding the floor requirements are outweighed by substantial emission reduction benefits. One commenter (A-90-19: IV-D-58) said the incremental emissions reduction of 1.3 percent from the floor to the selected option is likely to be in the realm of a statistical aberration given emission estimation uncertainties.

Response: The average characteristics of the floor was equivalent to about $3,000/Mg of organic HAP reduced. The EPA believes the estimates of emission reduction and costs are sufficiently accurate for use in regulation development, and the commenter did not provide specific details regarding their concern about estimation uncertainty. The EPA further believes that the incremental cost associated with the incremental emissions reduction is acceptable and justified and brings the HON level of stringency more in line with the cost-effectiveness in previous NSPS and the CTG.

Comment: One commenter (A-90-19: IV-D-32) stated that the EPA's cost analysis was generally correct but contended that there were two exceptions. First, the commenter (A-90-19: IV-D-32) contended that some of the EPA's assumptions were too conservative and lacked substantiation. Second, the commenter (A-90-19: IV-D-32) claimed that baseline controls for nonattainment areas were applied to facilities that are not in nonattainment areas.

Response: The EPA thanks the commenter for the general support of the EPA's cost analysis. Although the commenter disagreed with some of the EPA's assumptions, no specifics were given concerning which assumptions were being questioned and no alternatives were suggested by the commenter. Secondly, the commenter incorrectly stated that controls required for facilities in non-attainment areas were considered when evaluating baseline control level. Only existing State regulations were included in the baseline control analysis.

Comment: Two commenters (A-90-19: IV-D-32; and IV-D-112) stated that the HON did not consider the costs of upgrading existing controls to 98 percent DRE performance and presented an example of a catalytic incinerator (95 percent DRE) installed for compliance with the Air Oxidation NSPS. One commenter (A-90-19: IV-D-32) also suggested that the TRE measurements be allowed at the exit of a control device achieving at least 95 percent control efficiency.

Response: The Benzene NESHAP, vinyl chloride NESHAP, and regulations in five states were reviewed. All of these regulations required 98-percent control, except for one State regulation that requires 85-percent control. Therefore, all vents included in the HON baseline were assumed to be controlled to 98 percent except vents in the State requiring 85-percent reduction. These latter vents were assumed to be controlled with condensers, and costs were estimated for upgrading to incinerators. Thus, the HON does consider the costs of upgrading existing controls to 98-percent DRE effectiveness.

The Air Oxidation NSPS, which requires 98-percent reduction of VOC emissions from new air oxidation process vents, was not considered for the HON baseline, which means any vents that would be "caught" by this NSPS were assumed to be uncontrolled in the HON baseline analysis. Incorporating controls under the Air Oxidation NSPS, or any additional rule in the HON baseline analysis, would cause the HON control cost estimates to be lower. The HON costs of control are overestimated.

Comment: Two commenters (A-90-19: IV-D-69; IV-D-75) stated that the EPA erroneously assumed that all process vent streams are centrally collected and routed to a single control device. One commenter (A-90-19: IV-D-32) gave the following reasons why vent streams may not be collected together: mixed streams may create serious safety concerns, vent proximity or energy requirements may make central collection impractical, and various streams may be incompatible with the design of a single control device. Two other commenters (A-90-19: IV-D-79; IV-D-97) also pointed out the potential safety hazards of plant-wide manifolding of vent streams. One commenter (A-90-19: IV-D-86) supported the determination of MACT control device cost effectiveness on a dedicated vent basis. The commenter (A-90-19: IV-D-86) acknowledged that vents may at times be combined cost effectively and safely, but stated that it would be inappropriate to assume all small vents may be manifolded together.

Response: The EPA believes the commenters have misinterpreted the cost analysis. For estimating cost of control, the EPA assumed that reactor vents from the same CMPU were combined, air oxidation vents from the same CMPU were combined, and distillation vents from the same CMPU were combined. The EPA did not combine vent streams from different CMPU's, nor did the EPA combine vent streams from different vent types (air oxidation, distillation, reactor). The EPA did assume that reactor vents from the same CMPU would be located near each other, and no information was received to discredit this assumption. Therefore, the EPA does not believe that safety, vent proximity, and stream incompatibility are of concern because of the methodology used for the national impacts analysis.

Comment: One commenter (A-90-19: IV-D-68) stated that the purchase of computers, running of conduit, installation of wiring, programming, and all auxiliary equipment required for monitoring will raise costs of control to TRE's of 10.0 or greater, yet these costs do not appear to be included in the TRE calculation or cost model.

Response: The burden for an individual vent should be small since many plants already have process control computer systems or would purchase and program computer systems because of the need to monitor other emission points. Most vent parameter monitors (e.g., temperature monitors) are very inexpensive (relative to the control device costs included in developing the TRE equations). Therefore, including these costs would not be expected to significantly increase the TRE index values.

Also, the standards do not require use of computers. Provisions have been added to §63.151(f) allowing sources to request alternative monitoring for non-automated systems. Costs for computerized recordkeeping and reporting were calculated as part of the national burden estimate and were considered in developing the standards.

2.2.2 Emission Estimates

Comment: One commenter (A-90-19: IV-D-71) disagreed with the assumption that uncontrolled emissions are linearly related to the production capacity of a give production process.

Response: A linear relationship was considered to be the best estimate based on the available data. Although a linear estimate may not be precise for a given production process, the EPA regards these estimates as a reasonable representation of emissions on a nationwide basis. The commenter did not provide data relating production capacity and uncontrolled emissions on which to base a revision in the emission estimation methodology.

2.3 APPLICABILITY AND GROUP 1/GROUP 2 DETERMINATION

2.3.1 Applicability

Comment: One commenter (A-90-19: IV-D-92) asked how the TRE applies to particulate HAP's.

Response: The EPA does not expect organic HAP particulate emissions from the regulated processes. The TRE would not apply if such emissions should occur.

Comment: Two commenters (A-90-19: IV-D-73; IV-D-113) requested that the standard be clarified by expressing all applicability and treatment criteria on a ppmv basis, specifically changing the 50 ppmw organic HAP concentration in the process vents definition. Another commenter (A-90-19: IV-D-71) asked that the 0.005 weight percent exemption included in the process vent definition be expressed in ppmv instead of in ppmw. One commenter (A-90-19: IV-D-77) recommended that the 50 ppmv Group 2 criteria be used in lieu of the 0.005 weight percent (50 ppmw).

Response: The ppmw unit was used to express the applicability criteria of 0.005 ppmw because the data on which the decision was based were expressed as ppmw. The ppmw unit has been retained in the final HON in order to avoid using an arbitrary conversion from ppmw to ppmv.

Comment: One commenter (A-90-19: IV-D-86) pointed out that under certain circumstances a vent stream could be both greater than 0.005 percent HAP by weight and less than 50 ppm HAP by volume. The commenter (A-90-19: IV-D-86) thought the proposed HON would in this case be unclear as to whether or not the vent stream is subject to control, and recommended adding a 0.002 percent by volume clause to the process vent definition.

Response: The commenter is correct in stating that a stream could be both greater than 0.005 weight percent and less than 50 ppmv. In this case, the stream would be a Group 2 process vent. The following protocol must be followed in making the above determination: (1) does the HON apply to the stream; and (2) is the stream Group 1 or Group 2. If the stream contains less than 0.005 HAP weight percent, the stream is not considered a process vent, the HON is not applicable, and no further determination is required. Assuming the stream meets the weight percent applicability criteria, a group determination must be made. This may be done using the TRE equation, the low-flow level criterion, and/or the low concentration level criterion. The commenter's example uses the low concentration criterion of 50 ppmv HAP. If the stream in question is below 50 ppmv HAP, it is classified as a Group 2 stream and must comply with the Group 2 process vent requirements. If the stream is equal to or greater than 50 ppmv HAP and has a flow greater than 0.005 scmm and a TRE less than or equal to 1.0, it would have to comply with the Group 1 process vent requirements.

Comment: Three commenters (A-90-19: IV-D-32; IV-D-98; IV-D-112) favored including a *de minimis* flow rate of 0.005 scmm in the subpart F process vents definition instead of using the 0.005 scmm flow rate to identify Group 2 vents without TRE calculations.

Response: A flowrate of 0.005 scmm is given in the regulation to distinguish Group 2 process vent streams that are not required to perform a TRE calculation. However, it was not the EPA's intent to exempt those Group 2 process vent streams with a flowrate of 0.005 scmm from all requirements of the HON. The EPA's intent was to exempt such streams from the Group 1 control requirements, but to require minimal reporting and recordkeeping necessary to verify that the process vent was correctly classified as Group 2 and to require reporting of flow rate changes that cause such a vent to become Group 1.

In order to accomplish this intent, the process vent stream definition does not incorporate a flowrate criterion.

Comment: One commenter (A-90-19: IV-D-77) noted that the weight percent applicability and low concentration Group 2 criteria seem to indicate the criteria are based on individual HAP's while the testing methods give results in total HAP concentration. The commenter (A-90-19: IV-D-77) asked that the methodology be changed to match the definitions, or vice versa.

Response: The EPA has revised the definition of process vent in §63.101 and Group 2 process vent in §63.111 to clarify that the applicability criteria are based on total organic HAP.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-69) asked that a halogen mass flow rate be included in the definition of a halogenated stream to allow certain 200 ppmv and higher halogen vent streams with low mass flow rates to be vented to a flare (i.e., a control device without an acid scrubber).

Response: The EPA agrees with the commenters and the definition of a halogenated stream has been revised to include a halogen atom mass flow rate of 1.0 lb/hr or greater instead of a concentration basis.

Comment: One commenter (A-90-19: IV-D-85) stated that the EPA offers no justification for exempting vents associated with wastewater treatment from the requirements for process vents.

Response: Vents associated with wastewater treatment are exempt from the process vents requirements, but not exempt from control. Control requirements for vents associated with wastewater treatment are in §63.139.

Comment: One commenter (A-90-19: IV-D-112) claimed that it is not economically or environmentally feasible to control vents with insignificant emissions.

Response: The commenter has used some subjective and vague terms such as "insignificant emissions" and "environmentally feasible" without supporting data for clarification. With regard to "insignificant" emissions, the EPA assumes that the commenter supports the establishment of mass emission rates below which controls would not be required. The economic feasibility of controlling a vent stream is determined by the TRE calculation. The EPA has attempted to identify streams with high or "unreasonable" cost-effectiveness through the establishment of a Group 1/Group 2 classification based either on TRE or on low flow and low concentration levels. The emissions from streams qualifying as Group 2 under these criteria would likely be considered "insignificant" by the commenter.

2.3.2 Group 1/Group 2 Determination

Comment: Two commenters (A-90-19: IV-D-86; IV-D-92) said that since the TRE calculation is based on individual vents, it would be inappropriate to apply the TRE determination to combined vents.

Response: The EPA agrees that the TRE should be applied on an individual vent basis as the proposed rule states. The point of measurement is the outlet of the final product recovery device (if any recovery device is present) and prior to any subsequent combination or release to the atmosphere. In cases where vents are already grouped to a common header, compliance may be achieved through the application of a combustion device in order to avoid the TRE calculation altogether; or the TRE's of individual streams may be determined, and if any are Group 1, these can be controlled or included in an emissions average.

Comment: One commenter (A-90-19: IV-G-4) requested that the proposed HON be revised so that mixing of streams prior to a product recovery device not be considered dilution and that TRE determination be performed after the last product device.

The commenter (A-90-19: IV-G-4) noted that compliance for new sources desiring to use product recovery on a number of streams would be very costly if duplicate product recovery devices would be required.

Response: The EPA intended for the measurement for TRE determination to be taken following the final product recovery device. Prior to this final product recovery device, mixing of streams is allowed; however, once the process vent stream passes through the final product recovery device, the measurement for TRE determination must be taken prior to any further mixing of streams. The final rule has been revised to clarify this requirement.

Comment: One commenter (A-90-19: IV-D-92) asked for clarification as to whether individual streams from distillation columns are measured or whether group vents from the "process unit" are measured. The commenter (A-90-19: IV-D-92) added that this is also a point of ambiguity in NSPS, subpart NNN.

Response: The point at which all testing must be done for the purpose of group determination is after the final recovery device and prior to mixing with any other stream or streams. Therefore, the individual streams from each recovery device would be tested if testing is necessary.

Comment: One commenter (A-90-19: IV-D-62) reasoned that since the DRE for boilers and process heaters is already proven to meet or exceed 98 percent, there is no need for TRE determination for vents routed to fuel gas systems where the fuel gas is used as the primary fuel and the process vent definition should be rewritten to exclude these streams.

Response: A TRE determination is not necessary for vent streams complying with the 98 percent reduction requirements, regardless of the control device used. However, such process vent streams are still considered process vents, and are subject to monitoring, reporting, and recordkeeping requirements in the rule. A performance test is not required for boilers/process heaters with a heat input greater than 44 MW or where the vent stream is combined with the primary fuel.

Comment: Two commenters (A-90-19: IV-D-64; IV-D-73) supported the exclusion for recalculating TRE for changes that are within the range on which the original TRE calculation was based. Another commenter (A-90-19: IV-D-34) requested that the same exclusions be allowed for any changes included in an operating permit or permit application.

Response: Any time that a change is made such that the value of any parameter used in the TRE equation for a process vent stream (e.g., flow, organic HAP emissions, TOC emissions, or heating value) is outside the range on which the original TRE calculation in the NCS was based, the TRE index value must be recalculated. If the change is within the range used to determine the original TRE, then the TRE does not need to be recalculated. If a parameter is within the range included in the operating permit but outside of the range used as the basis for the TRE determination, the TRE value would still need to be recalculated.

As stated in §63.4 of the General Provisions, an owner or operator who is subject to an emission standard would comply with the requirements of the emission standard regardless of whether: (1) an operating permit had been issued to that source, or (2) the operating permit has been revised to include the emission standard requirements. In most all cases, the requirements given in the HON would override the requirements given in the operating permit. An exception would be where the operating permit contains more stringent requirements than those included in HON.

Comment: One commenter (A-90-19: IV-D-34) objected to adjusting O_2 concentration to 3 percent for the purpose of determining Group 1/Group 2 status via the low HAP concentration exemption. Another commenter (A-90-19: IV-D-70) added that the correction is inappropriate in cases where very little O_2 is present, such as nitrogen blanketing.

Response: The commenters' objection is well-founded. The correction to 3 percent O_2 in §63.115(c) was inappropriate for determining Group 1/Group 2 status and has been removed from the final rule.

Comment: Four commenters (A-90-19: IV-D-52; IV-D-79; IV-D-86; IV-D-97) requested that testing for the purpose of determining group status by the TRE calculation be allowed after any existing control devices (if any controls are present) for vents which have applied controls to existing sources.

Response: If the device is the final recovery device, TRE testing is to be performed after the final recovery device (i.e., at the outlet prior to release to the atmosphere or prior to a combustion device) and prior to mixing with any other streams. If the control device is an existing combustion device, no TRE determination is required provided the combustion device is achieving a 98 percent level of control. If an existing control device does not achieve 98 percent HAP reduction or 20 ppmv, then a group determination must be made for the stream prior to the combustion device. If this is not done, a situation could exist such that a stream is Group 1 at the inlet and Group 2 at the outlet of a less than 98 percent efficient combustion device. If group status were determined at the outlet of the device, it would be allowed to continue to operate at a level of performance less than MACT. This would be contrary to the intent of the HON regulation.

In the case of an existing combustion device with less than 98 percent efficiency, the following options are available: (1) alter the process or apply a recovery device so that the stream is Group 2 prior to the combustion device;

(2) upgrade the existing device so that it achieves 98 percent HAP or TOC reduction or 20 ppmv outlet concentration; (3) replace the existing combustion device with a new one that achieves 98 percent efficiency; or (4) utilize an emissions averaging plan so that the emissions debits from the underperforming devices are compensated for by credits elsewhere in the source.

Comment: Several commenters (A-90-19: IV-D-48; IV-D-92; IV-D-112; IV-D-113) supported the use of engineering estimates for calculating TRE where TRE is greater than 4.0. One commenter (A-90-19: IV-D-32) said that within the expected accuracy of engineering estimates, their analysis indicates that a TRE cutoff value of 3.0 will capture all Group 1 vents in the EPA BID draft with the exception of a single high flow, low HAP concentration vent. The commenter (A-90-19: IV-D-32) recommended that a TRE of 3.0 be used to establish the calculation-based cutoff to provide relief to limited testing resources from the TRE testing determination procedure for those process vents that are obviously Group 2. The commenter (A-90-19: IV-D-32) suggested that an alternative cutoff value be developed to exclude high flow, low HAP concentration vents from the calculation-based alternative, but did not suggest an alternative cutoff value. Another commenter (A-90-19: IV-D-86) supported TRE testing when the calculated TRE is less than 4.0.

Response: The TRE value of 4.0 has not been changed since the EPA considers this value reasonable. Engineering judgement is allowed in determining group status provided that the TRE of the stream is calculated and shown to be greater than 4.0. If the TRE calculation results in a TRE less than or equal to 4.0, the TRE inputs must be measured and the TRE recalculated, or the flow or concentration must be tested to qualify for Group 2 status. This does not penalize the facility, but in fact allows the facility to avoid full TRE testing that would otherwise be required for a Group 2 process vent with TRE greater than 1.0 and less than or equal to 4.0. Additional calculation-based cutoffs for high flow, low HAP concentration streams would complicate the rule by requiring additional calculations or testing to determine which process vent streams are high flow, low HAP concentration.

Comment: Several commenters (A-90-19: IV-D-48; IV-D-58; IV-D-64; IV-D-73; IV-D-78) proposed that engineering calculations or operational data be used for the process vent flow rate and process vent HAP concentration Group 1/Group 2 determination. One of the commenters (A-90-19: IV-D-64) suggested that it would then be up to the discretion of the regulatory agency to judge the technical accuracy of the data used in the calculation.

Response: If only flowrate or concentration is selected for process vent group determinations, testing is required. Engineering judgement is allowed in determining the TRE index value because a margin for inaccuracies in estimation has been included. If the TRE index value is less than 4.0, testing is required to ensure the accuracy of the TRE index value. Engineering judgement is allowed for flowrate and concentration estimates used in the calculation.

Comment: Three commenters (A-90-19: IV-D-32; IV-D-33; IV-D-112) suggested that engineering judgement or process knowledge be allowed for determining the classification of a halogenated vent stream. Commenters (A-90-19: IV-D-32; IV-D-112) stated that this could be used specifically when halogen status made no difference in Group 1/Group 2 classification via the TRE calculation.

Response: Although the proposed rule did not contain the explicit language to allow the commenter's suggestion, it was, in fact, the EPA's intent to permit engineering judgement for halogenated streams when halogen status does not affect the outcome of the group status determination and the calculated

TRE is greater than 4.0. The final rule has been revised to allow the engineering judgement in these cases. When the calculated TRE is less than 4.0, testing is required to more accurately establish the TRE value.

Comment: One commenter (A-90-19: IV-D-74) said that the regulatory scheme in the proposed rule requires that the owner estimate or measure emissions from every uncontrolled vent on the plant site, and periodically recheck the estimate to ensure its continued accuracy. The commenter (A-90-19: IV-D-74) then referred to 57 FR 62615 (§63.112).

Response: The EPA maintains the position that no owner or operator would calculate emission estimates for every emission point at the source in order to comply with the HON and that the allowable emission level in §63.112 is one way of expressing the standard. The owner may elect to comply with the RCT by adding a control device to each Group 1 vent and not calculate emission estimates for those process vents. The owner may also measure only the process vent stream flowrate to determine group status. If the owner uses emissions averaging, emissions only need to be calculated in debits and credits for those points included in the average.

Comment: One commenter (A-90-19: IV-D-64) suggested that the halogenated vent stream definition be revised so that streams that are scrubbed to reduce halogens to less than 200 ppmv prior to a control device would not be considered halogenated vent streams.

Response: The EPA agrees with the recommendation made by the commenter that the halogenated vent stream definition and requirements should be revised so that a scrubber to reduce halogens prior to a control device can be used to comply. The scrubber used in this case does not need to be a product recovery device. In the final rule, a halogenated stream is defined as having a mass emission rate of 0.45 kg/hr (1.0 lb/hr) or greater instead of a 200 ppmv concentration.

Streams with halogen emissions above 0.45 kg/hr must reduce halogen emissions by 99 percent or to a level of 0.45 kg/hr. A scrubber prior to a combustor could be used to meet this emission reduction requirement.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-88) stated that the EPA has not provided a sufficient basis for the establishment of the 200 ppmv halogen concentration threshold in the definition of a halogenated vent stream. One commenter (A-90-19: IV-D-32) advocated the following: (1) establishment of a halogen mass emission rate (4 lb/hr) for the halogenated vent stream definition, (2) allowing combustion by flare or incinerator of halogenated streams below the suggested emission rate.

Response: The EPA reviewed scrubber efficiency data provided in the ethylene dichloride questionnaire responses. Based on the scrubber outlet halogen emissions data, the EPA has established a 0.45 kg/hr (1.0 lb/hr) or greater mass emission rate as the definition of a halogenated stream. Therefore, a stream containing 0.45 kg/hr or greater of halogen atoms is considered halogenated and if combusted, must reduce the halogen atom content by 99 percent or below 0.45 kg/hr of halogen atoms. If a vent stream contains less than 0.45 kg/hr of halogen atoms, this vent stream is not considered halogenated and may be flared.

Comment: One commenter (A-90-19: IV-G-4) suggested that Group 1 and Group 2 status for existing halogenated streams that are currently collected in a flare or fuel gas header for control purposes should be determined after mixing and before the emission control device.

Response: Group determination is not necessary if the vent stream is controlled in a manner meeting the Group 1 control requirements in the regulation. Group status is determined on an individual vent basis to prevent dilution from a Group 2 vent stream mixing with a Group 1 vent stream and the resulting mixed stream being measured as a Group 2 stream and not being controlled. The rule states that any process vent stream containing halogens must be tested individually prior to any mixing to determine the concentration of halogens. If the stream contains less than 0.45 kg/hr (1.0 lb/hr) of halogen atoms, then the stream is not considered halogenated and would be subject to the requirements for nonhalogenated streams. However, if the stream contains 0.45 kg/hr or greater of halogen atoms, then the stream would be considered a halogenated stream; if the owner or operator routed the stream through an incinerator, a scrubber or other control combination achieving the 99-percent reduction or reducing the halogen emission rate to less than 0.45 kg/hr would be required.

Comment: One commenter (A-90-19: IV-D-88) proposed a cost/reasonableness test that takes into consideration the impact of requirements due to a particular component of a mixed stream. The commenter's (A-90-19: IV-D-88) specific concern is the requirement of an incinerator and scrubber for a mixed stream of both halogenated and non-halogenated HAP's. The commenter (A-90-19: IV-D-88) reasoned that although the halogenated HAP content is sufficient to define the entire stream as halogenated, the stream would not be classified as Group 1 when only the halogenated compounds were considered alone. However, the commenter (A-90-19: IV-D-88) also stated that the overall characteristics of a stream should be considered when determining the appropriate control for a vent stream. The commenter (A-90-19: IV-D-88) also suggested that the EPA provide opportunities for special relief from the rule if the halogenated process vent stream definition is not changed from 200 ppmv.

Response: All TRE calculations for group determination are to be based upon TOC and total organic HAP, regardless of halogenation status. In order to determine the appropriate

TRE index value (which is an index of cost-effectiveness of control), the total flow, total HAP emissions, TOC emissions, net heating value, and halogen concentration of the stream must be used in the calculation. No revisions have been made to this aspect of the regulation. Controls are required only for Group 1 emission points which have been shown to have a TRE of 1.0 or less. The definition of a halogenated process vent stream is revised as having a mass emission rate of 0.45 kg/hr or greater of halogen atoms. Analyses indicate that control of such emission points is reasonable, and therefore special relief as requested by the commenter (A-90-19: IV-D-88) from the rule is not applicable.

Comment: Two commenters (A-90-19: IV-D-74; IV-D-86) supported the determination of MACT control device cost effectiveness on a dedicated vent basis. One commenter (A-90-19: IV-D-86) acknowledged that vents may at times be combined cost effectively and safely, but stated that it would be inappropriate to assume all small vents may be manifolded together.

Response: The EPA agrees with the commenter and thanks them for their support.

2.4 COMPLIANCE DEMONSTRATIONS

2.4.1 Performance Testing

Comment: One commenter (A-90-19: IV-D-113) stated that Method 2 is neither necessary nor the most accurate method for high flow gas streams, such as air oxidation vents. The commenter (A-90-19: IV-D-113) recommended that the EPA allow air oxidation process flow rates to be measured through established mass balances or other means which can be demonstrated to provide accurate measures in place of the use of Method 2, 2A, 2C, or 2D. Another commenter (A-90-19: IV-D-77) also warned of difficulties of measuring flows that are highly variable, low volume, or near ambient pressure with Method 2 and urged the use of methods developed and validated for the operating conditions more typical of process vents. The commenter (A-90-19: IV-D-77) stated that using Method 2 may induce system upsets, i.e., non-steady state flow.

Response: The EPA agrees with the commenter that Method 2 is less likely to give a good average if the process vent stream is highly variable. However, other alternatives for determining stream characteristics are available in the HON besides Method 2. First, if an owner or operator can document estimates of the flowrate and concentration of the process vent stream derived from engineering assessment (including process knowledge), and the resulting TRE is greater than 4.0, then the owner or operator does not need to use Method 2 to measure the process vent stream flow rate. Note that the owner or operator would be required to test the process vent stream if the resulting TRE is less than or equal to 4.0. However, most vent streams with a TRE of 4.0 or less will be relatively large vent streams from continuous processes, which are not highly variable, and Method 2 will be applicable to most of these streams. Furthermore, if the owner or operator encounters difficulties when using Method 2 under certain conditions, such as measuring low flow or highly variable flow streams, alternate methods for measuring may be validated according to Method 301 of 40 CFR part 63, appendix A. Once validated, those methods could be used instead of Method 2.

In addition, any owner or operator who wishes to use an alterative monitoring method other than those discussed above can submit an application for alternative monitoring requirements to the Administrator as detailed in §63.8 of subpart A of the General Provisions.

Comment: Two commenters (A-90-19: IV-D-34; IV-D-71) disagreed with the use of the O_2 concentration adjustment to 3 percent O_2 for non-combustion control devices.

Response: The commenter is correct. The final rule has been revised so that only combustion devices are required to correct to 3 percent O_2.

Comment: One commenter (A-90-19: IV-D-33) recommended that each facility's permit be allowed to include bypass provisions under certain sets of circumstances that take into account the pollutants emitted, potential off-site impacts, and volume of emissions and that bypasses permitted in such provisions not be considered excursions for compliance purposes.

Response: The General Provisions allow for a malfunction, start-up, shut-down plan and bypasses covered in that plan would not be considered excursions. Bypasses not covered under the plan would likely be considered excursions or violations.

Comment: One commenter (A-90-19: IV-D-92) suggested allowing a limit switch to be attached to a bypass valve (i.e., vent gas bypass) attached to a computer monitor because it may be helpful in minimizing data gathering requirements.

Response: The rule does not require emissions monitoring of bypass valves, but requires a flow indicator to ensure the vent stream is routed to the control device and not bypassed to the atmosphere. Provisions for monitoring parameters are provided in the rule.

Comment: One commenter (A-90-19: IV-D-92) reasoned that variable flows and concentrations to combustion devices cause testing of those devices to be non-representative, and suggested that engineering judgement be allowed as a supplement for, or in lieu of, combustion device testing.

Response: The EPA acknowledges that varying flows and concentrations exist in process vents. It is up to the facility to use engineering judgement in choosing the process conditions under which the source testing will be conducted.

These conditions should be chosen so that they are representative of typical process operations. With regard to combustion device testing, if the combustion device achieves the required emission reductions under one set of process conditions judged to be representative of the process, then the EPA is confident that the combustion chamber temperature during which the test was performed is adequate and the standard will be achieved under normal operation of the unit. The combustion chamber temperature is sufficient for monitoring since variations in flow will cause the chamber temperature to vary.

Comment: One commenter (A-90-19: IV-D-92) pointed out that non-flare combustion devices must prove 98 percent DRE by performance testing, while flares are assumed to be 98 percent effective with no required testing performance test. The commenter (A-90-19: IV-D-92) suggested that the 98 percent DRE for flares could be a flare temperature of 1500 ^{o}C with a residence time of 0.75 seconds as in NSPS subpart QQQ or a temperature of 1400 ^{o}C with a residence time of 0.5 seconds as in NESHAP subpart V.

Response: The proper flare operation guidelines are presented in §63.11 of the General Provisions. These guidelines must be followed to maintain compliance with the HON regulation.

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) supported the establishment of compliance parameters for incinerators, boilers/process heaters, and scrubbers by performance testing and advocated the determination of compliance based on hourly averages calculated from data collected every fifteen minutes.

Response: As discussed in the reporting and recordkeeping section (see section 7), compliance parameters are established during the performance test, although engineering assessment can also be used in establishing parameter ranges. For purposes of complying with the HON, daily averages are used. The commenter gives no rationale for selecting hourly averages over daily averages. The EPA's rationale for selecting daily averages is discussed in the above mentioned section.

Comment: One commenter (A-90-19: IV-D-70) stated that the DRE of boilers and process heaters (regardless of heat duty) should be required to be established through initial performance testing. Three other commenters (A-90-19: IV-D-35; IV-D-64; IV-D-99) supported the testing exemption for boilers and process heaters with heat input greater than 44 MW.

Response: The initial performance test exemption is appropriate for a boiler or process heater with heat input capacity of 44 MW (150 million Btu/hr) or greater in which all process vent streams are introduced into the flame zone and for all boilers or process heaters in which the process vent streams are introduced with or as the primary fuel. Emission factor calculations (AP-42), submitted test results, and temperature and residence time calculations indicate that the expected DRE for boilers and process heaters with heat input capacities greater than 44 MW would be greater than 98 percent. The EPA references "Reactor Processes in the Synthetic Organic Chemical Manufacturing Industry - Background Information for Promulgated Standards," EPA-450/3-90-016b, March 1993 to support the decision. When the vent stream passes through the flame front it would, on average, be combusted at higher temperatures and longer residence times than if introduced with combustion air. This information indicates that a process vent stream would achieve combustion efficiency greater than the required 98 percent level. For this reason, it is not necessary to establish the emission reduction of these boilers and process heaters through initial performance testing.

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) recommended that ranges for the following monitoring parameters be established during the initial performance test for thermal incinerators, boilers, and process heaters: firebox exit temperature, and CO and O_2 concentrations in the outlet stack gas.

Response: Based on previous incinerator performance studies, temperature and residence time are the key parameters which influence performance. During the performance test for combustion devices, the temperature is monitored and a range established. Any fluctuation in process vent flow rate will be reflected by a change in temperature. Therefore, the EPA determined that temperature alone is sufficient to monitor compliance for combustion devices which require a performance test. Other monitoring parameters, such as CO or O_2 outlet concentrations may be requested under the alternative monitoring parameter requirements in §63.114 and §63.151 of subpart G.

It is not appropriate to include specific values in the regulation for the combustion parameters mentioned by the commenter. These combustion parameters need to be established on a site-specific basis during the performance test, because they would not be applicable to every situation. These parameters are highly variable from one process to another depending on the constituents of the vent stream.

Combustion devices which do not require a performance test (such as boilers and process heaters with a heat capacity design greater than 44 megawatts and a vent stream that is introduced with the combustion air or a vent stream introduced as or with the primary fuel) also do not require monitoring of the combustion device, because the temperature and residence time of these devices exceed the levels needed to achieve at least a 98 percent reduction.

Comment: Two commenters (A-90-19: IV-D-22; IV-D-73) asserted that units that have undergone performance testing for NSPS should not need to be tested for the HON if there have been no process changes since the compliance tests. One commenter (A-90-19: IV-D-22) stated that NSPS compliance testing is rigorous, costly, and requires the same EPA methods as the HON. Another commenter (A-90-19: IV-D-35) suggested that any incinerator, boiler, or process heater that has obtained an operating permit (such as a State air permit or a RCRA permit) and has existing data to prove 98 percent DRE should not be required to conduct a performance test.

Response: The EPA agrees with the commenters that it would be unnecessarily burdensome to require the owner or operator of a unit to repeat identical tests required for other compliance purposes, such as NSPS or RCRA, if no process changes had been made to the unit since the test was performed. For this reason, the regulation has been revised so that it does not preclude the use of previously conducted tests if those tests were performed using the same test method and no process changes have been made to the unit in the interim.

Comment: One commenter (A-90-19: IV-D-22) recommended that text be added to §63.116(b)(2) to clarify that a boiler or process heater need not be tested when a process vent stream serves as the primary fuel. Another commenter (A-90-19: IV-D-34) pointed out that table 3 of §63.117(a)(4)(i) and the text of §63.117(a)(4)(iv) were not consistent in presenting the monitoring requirements for boilers and process heaters. Another commenter (A-90-19: IV-F-7.33) claimed that monitoring requirements for boilers did not exist.

Response: Only boilers or process heaters smaller than 44 MW and combusting a process vent stream that is not used as or mixed with the primary fuel are required to conduct a performance test. To clarify this requirement, the language of the regulation text and the table have been revised so that they are consistent. Monitoring of firebox temperature is also required for boilers meeting these specifications.

No monitoring or testing is required of boilers 44 MW or greater, or of those boilers below 44 MW that introduce the process vent stream as the primary fuel or that mix the vent stream with the primary fuel and introduce it through the same burner. The EPA decided that monitoring of these units was not necessary because their burning characteristics would ensure a 98 percent reduction in the organic content of the process vent stream. Monitoring for all other boilers below 44 MW is described in §63.114.

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) indicated that experience with catalytic incineration has been problematic due to the degradation of the catalyst bed (poisoning) that occurs under normal operation of this type of control device. As a result, the commenters (A-90-19: IV-D-70; IV-D-99) recommended repeated performance testing to detect catalyst poisoning and to verify the percent reduction achieved. The commenters (A-90-19: IV-D-70; IV-D-99) asserted that the performance testing should establish the inlet catalyst bed temperature and the VOHAP and TOC concentrations in the outlet stack gas, while another commenter (A-90-19: IV-D-34) claimed that the catalytic bed inlet temperature is inconsequential to catalytic incinerator performance and therefore need not be monitored.

Response: The temperature difference across the catalyst bed has been determined to be sufficient for determining proper operation of a catalytic incinerator, and additional performance tests would be unnecessary and burdensome. A change or drift in this temperature differential would generally indicate cases of catalyst poisoning. During the initial performance test, owners or operators of catalytic incinerators must establish a site-specific parameter range for temperature difference across the catalyst bed. This established range becomes their operating requirement. The owner or operator would be required to continuously monitor inlet and outlet bed temperature and calculate the temperature difference. If the temperature difference is ever outside the established range, this would be a violation of the operating standard.

2.4.2 Monitoring

Comment: One commenter (A-90-19: IV-D-92) requested that alternative monitoring protocol, subject to the EPA's approval, be allowed if the proposed monitoring requirements are not feasible or economical for a particular facility.

Response: The EPA agrees and has provided for alternative monitoring in §63.151(f).

Comment: One commenter (A-90-19: IV-D-41) said there should be clearly established emission limitations for process vents and suggested that emission monitoring at the exit of the last control device be performed regularly, no less than annually. The commenter (A-90-19: IV-D-41) added that product recovery devices or vapor collection devices should be required for concentrated streams prior to any combustion device.

Response: To allow for site-specific situations, the regulation does not require mass emission limits for organic HAP's (e.g., pound per hour limits). Instead, the regulation establishes a percent reduction limit. The regulation lists operating parameters to be monitored for each control device and requires the source to establish site-specific parameter ranges to ensure that the control device is properly maintained and operated. Continuous monitoring is required for most controls.

If an owner or operator selects to monitor a parameter that is not listed in the regulation, that owner or operator can request approval of such monitoring, to include establishing a range and monitoring frequency for the parameter that would indicate proper operation of the control. In most cases, parameter monitoring will be continuous rather than annual.

An owner or operator has the option of using a recovery device to achieve a TRE greater than 1.0 or achieve a 98-percent reduction, but is not required to do so because a recovery device may not meet the control TRE requirements in all cases.

Comment: One commenter (A-90-19: IV-D-73) supported the monitoring exemption for boilers and process heaters that introduce all vent streams with primary fuel, and one commenter (A-90-19: IV-D-73) strongly supported the monitoring exemption for boilers and process heaters with greater than 44 MW heat input. To the contrary, two commenters (A-90-19: IV-D-85; IV-F-7.33) urged that monitoring be required for all boilers and process heaters, including those with heat input greater than 44 MW and those introducing vents with or as primary fuel. The commenter (A-90-19: IV-D-85) stressed that boiler or process heater performance will decline if not operated and maintained properly and said that the EPA should require monitoring of these devices so that operators have the incentive to maintain the devices properly and replace them before they deteriorate.

Response: The EPA agrees that there would be technical and cost incentives to maintain the equipment properly because boilers are usually used to generate heat and energy needed for the process. Sources must keep such boilers operating properly in order to run their processes, especially if the vent stream is used as or introduced with the primary fuel. Therefore, by reducing the monitoring requirements, the burden on the facilities is also reduced.

Comment: One commenter (A-90-19: IV-D-89) proposed lowering the monitoring exemption for boilers and process heaters from less than 44 MW heat input to less than 8 MW heat input.

Response: The 44 MW was selected based on information available during development of the SOCMI NSPS on the temperature and residence times required by the boiler to achieve the desired combustion efficiency. The designs of boilers larger than 44 MW are such that they would consistently achieve over 98 percent reduction and monitoring is unnecessary. The commenter included no data to support lowering the monitoring exemption for boilers to a heat input capacity of 8 MW. If the owner or operator does not want to monitor temperature for the boiler, the owner or operator can apply to monitor an alternative parameter.

Comment: One commenter (A-90-19: IV-D-117) requested that CEM's be used to measure THC at the inlet and outlet of a thermal incinerator and that the monitoring data be submitted on a monthly basis. The commenter (A-90-19: IV-D-117) also suggested that for catalytic incinerators the THC and flow rate be monitored continuously and the data be submitted regularly. Additionally, the commenter (A-90-19: IV-D-117) suggested that the flow rate to a flare be monitored continuously and submitted monthly. One commenter (A-90-19: IV-F-10) requested better monitoring of release points, including flares, to ensure they are working efficiently.

Response: HON requires semiannual reporting for most plants, but quarterly reporting for those that are poor performers. This is frequent enough to enforce the standard in a timely fashion, but it is less burdensome for sources and enforcement agencies than monthly reports (see recordkeeping and reporting BID volume 2E). In addition, monthly reports would increase the reporting and recordkeeping burden without necessarily increasing any emission reduction benefits. The

EPA considers temperature monitoring less burdensome than THC monitoring, and adequate for compliance demonstration.

Comment: One commenter (A-90-19: IV-D-12) stated that the wording in §63.114(a)(2) could be construed as excluding infrared monitoring as a flare pilot flame detection device. The commenter's (A-90-19: IV-D-12) reasoning was that thermocouple and ultraviolet monitoring were specifically given as examples, which could be confusing to any persons considering the application of infrared monitoring. The commenter (A-90-19: IV-D-12) suggested that either infrared monitoring also be included as an example, or no specific examples be given.

One commenter (A-90-19: IV-D-12) disagreed with the use of the phrase "at the pilot light" in §63.114(a)(2) and suggested that the phrase be removed from the above stated paragraph or be rewritten to indicate that the thermocouple needs to be "at the pilot light", but other sensors could be remote while monitoring the pilot flame.

Response: The EPA did not intend to exclude infrared monitoring as a possible flare pilot flame detection device. In the regulation, thermocouple and ultraviolet monitoring were mentioned as examples of possible detection devices; however, other types of devices could be used as long as their function is to ensure that the pilot flame remains lit. For this reason, infrared monitoring has been added into the regulation as an example of a flare pilot flame detection device.

In addition, language has been added into the regulation stating that the detection device used must ensure the pilot flame is lit. Such language would ensure that all possible pilot flame detection devices, including those not on the list, would achieve their desired function.

Section 63.11(b)(5) of the General Provisions does not include the phrase "at the pilot light." If a thermocouple is used as a detection device, then it must be positioned at the pilot light to sense the flame. However, there are other detection devices, such as ultraviolet and infrared monitors, that could be positioned remote from the pilot flame while still monitoring its presence.

To ensure that the wording of the regulation does not preclude the use of infrared devices and other devices that indicate the continuous presence of the flame but are not positioned at the pilot light to sense the flame, §114(a)(2) has been reworded as follows:

> (2) Where a flare is used, the following monitoring equipment is required: a device (including but not limited to a thermocouple, ultraviolet beam sensor, or infrared sensor) capable of continuously detecting the presence of a pilot flame.

Comment: One commenter (A-90-19: IV-D-54) pointed out that scrubbers are not always used to control halogenated streams and that in these cases, the scrubber is not necessarily a recovery device. If the scrubber controls a non-halogenated stream, then pH is not an appropriate monitoring parameter. One commenter (A-90-19: IV-D-70) also suggested that the scrubbing fluid maintain a minimum pH of 13.

Response: In the regulation, requirements are given for three different control device scenarios that include scrubbers. These three different scenarios, their monitoring requirements, and where the requirements are given in the rule are outlined as follows: First, for a halogenated stream routed through a combustion device and then a scrubber, monitoring of pH and L/G ratio is required [see §63.114(a)]. Second, for a stream with a TRE between 1.0 and 4.0 that is routed through a scrubber for recovery, liquid temperature and exit specific gravity are monitored [see §63.114(b) for absorbers]. And third, for a scrubber used in a configuration other than the two mentioned above (including a non-recovery scrubber used as a control device for a non-halogenated stream and a scrubber used as a control device for a halogenated stream prior to combustion), the provisions for monitoring alternate control technologies must be followed. In such cases, site-specific parameters must be selected and monitored based on approval from the Administrator as described in §63.114(c)(1) of the rule.

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) suggested that performance testing and compliance parameters for absorbers include solvent type and flow rate, specific gravity of exiting solvent, and system pressure drop; but another commenter (A-90-19: IV-D-34) stated that monitoring of scrubbing liquid specific gravity for absorbers was unnecessary. Another commenter (A-90-19: IV-D-35) argued that pH monitoring of the final scrubber effluent is sufficient for determining adequate scrubber performance. This commenter (A-90-19: IV-D-35) added that it is unrealistic to expect flow meters to withstand the harsh conditions of both hot and acid service.

Two commenters (A-90-19: IV-D-79; IV-D-86) stated that gas flow to a scrubber is not necessarily a parameter that indicates proper scrubber operation. One commenter (A-90-19: IV-D-86) stated that scrubber liquid flow, scrubber pressure drop, and pH are typically monitored to assure proper operation and suggested that monitoring of either gas flow or pressure drop be allowed in §63.114(a).

Response: The first three commenters are referring to scrubbers used as recovery devices. According to table 4 and §63.114(b) of subpart G of the regulation, these sources must monitor specific gravity and exit temperature of the absorbing liquid. However, provisions for monitoring of alternate parameters are included in §63.114(c)(3) of the regulation. If, based on site-specific conditions, an owner or operator believes that it would be more appropriate to monitor a parameter other than the ones mentioned above, then the owner or operator could request approval from the Administrator to monitor a different parameter.

The next two commenters are referring to scrubbers used following a combustor to control HCl and other halogens and hydrogen halides in the stream. In this case, the owner or operator is required to monitor pH and scrubber liquid/gas ratio [see §63.114(a) and table 3]. These monitoring requirements are included in the rule to ensure that halogens and hydrogen halides are being removed from the combustor outlet. A variety of flow meters constructed from different materials are available for use in a caustic scrubber. The final two commenters are correct in pointing out that gas flow alone is not necessarily an indication of proper operation. However, the intent of the regulation is to monitor the scrubber liquid/gas ratio rather than the gas flow. As previously mentioned, §63.114(c) allows owners or operators to apply to monitor an alternative parameter on a site-specific basis.

Comment: One commenter (A-90-19: IV-D-77) maintained that monitoring of the scrubbing liquid temperature and specific gravity is not appropriate for non-recirculating or "once through" scrubbers. The commenter (A-90-19: IV-D-77) suggested that only liquid flow be monitored for a non-recirculating scrubber. One commenter (A-90-22: IV-D-13) recommended that the EPA allow alternate monitoring methods in some situations where the methods already listed in the regulation will not work. The commenter (A-90-22: IV-D-13) stated that for absorbers temperature and specific gravity must be monitored; however, if the organic content is very low, there will not be sufficient changes in these parameters to make them good indicators of absorber performance. The commenter (A-90-22: IV-D-13) contended that a minimum scrubbing flow that will achieve 98-percent efficiency can be determined, and that monitoring scrubbing flow should be acceptable.

Response: The EPA assumes that if an absorber is used in a recovery system, then the absorber recycles (or has the potential to recycle) a portion of its effluent and is not a once-through scrubber. Furthermore, the EPA assumes that absorbers used to scrub halogens from an incinerator's effluent is a once-through scrubber. As such, there are two sets of monitoring and testing requirements for the two absorber types just described. For absorbers used in recovery systems, a scrubbing liquid temperature monitor and a specific gravity monitor are required, both with continuous recordkeeping. For absorbers used after an incinerator (a once-through scrubber), a pH monitoring device and flow meter to measure scrubber liquid influent and inlet gas flow rates are required, both with continuous recordkeeping.

As stated in §63.114(c) for process vents and §63.127(c) for transfer operations, owners or operators may request approval to monitor parameters other than those listed in §63.127(a) or (b).

The commenter (A-90-22: IV-D-13) did not specify what they consider a "very low" organic content. However, if the exit organic content is 20 ppmv or less (higher for streams that are originally greater than 1,000 ppmv), the compliance requirement is being met. A change of organic content within that range is irrelevant. If the source or the permit authority has concerns regarding any monitored parameters, alternate parameters can be requested as specified in the above paragraph of this response.

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) suggested that exit stack gas VOHAP concentration be monitored continuously on regenerable carbon adsorption systems and that nonregenerable systems utilize backup canisters in series with primary canisters. The commenters (A-90-19: IV-D-70;

IV-D-99) further suggested that for nonregenerative systems, hourly monitoring occur between the primary and secondary canisters with replacement of the primary canister in like kind when the primary outlet TOC concentration exceeds 20 ppmv. Another commenter (A-90-19: IV-D-33) suggested that monitoring provisions be added to §63.114(b) and §63.127(b) providing the same opportunity for off-site regeneration of carbon canisters used in a carbon adsorption system.

Response: The canisters referred to by the commenters (A-90-19: IV-D-70; IV-D-99) are generally used on very small vent streams, batch processes, or small malodorous streams rather than on continuous process vent streams subject to HON monitoring requirements. However, if such canisters are used on continuous vent streams subject to HON monitoring requirements, then the owner or operator could request approval to monitor alternate parameters as described in §63.114.

Comment: One commenter (A-90-19: IV-D-113) stated that while temperature is an appropriate monitoring parameter for all types of adsorbers, specific gravity is not. The commenter (A-90-19: IV-D-113) suggested that the EPA either limit monitoring parameters for carbon adsorbers to temperature only, or offer a secondary parameter appropriate to the given technology, such as flow.

Response: Temperature and specific gravity monitoring are required for absorbers, not adsorbers. As discussed in §63.114(d) and shown in table 4 of the proposed rule, carbon adsorbers are required to measure regeneration stream (e.g., steam) mass flow during regeneration and the temperature of the carbon bed after regeneration.

Comment: One commenter (A-90-19: IV-D-64) requested clarification of why the rule requires all the monitoring records in table 7, §63.130(a)(2)(v) for carbon adsorber regeneration stream flow and carbon bed regeneration temperature, instead of requiring only daily averages.

Response: Detailed records are needed to assure that the parameters remain within their established range. A daily average is not used because flow and temperature after regeneration pertain only to the regeneration cycle, not to other periods of operation during the day.

Comment: One commenter (A-90-19: IV-D-35) requested that the EPA clarify the provisions in §63.118(b) requiring that readily accessible records be kept for a product recovery device or other means to achieve and maintain a TRE index value greater than 1.0 but less than 4.0. The commenter (A-90-19: IV-D-35) asserted that the phrase "or other means" is confusing and should be clarified by stating that if a process has a TRE value greater than 1.0 without using recovery devices (i.e. absorbers, condensers, etc.) it is exempt from these provisions, or the phrase "or other means" should be deleted from the section.

Response: A facility with a process vent stream achieving a TRE greater than 1.0 without using a recovery device (e.g., due to inherent process design or a process modification) would have to apply to monitor and report a site-specific parameter under §63.114(c) and is not exempt from monitoring provisions.

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) recommended that, due to process fluctuations, Group 2 vents with TRE greater than 4.0 should be allowed to follow the monitoring provisions for Group 2 vents with TRE values between 1.0 and 4.0. Another commenter (A-90-19: IV-D-48) opposed the monitoring requirements for Group 2 vents with TRE between 1.0 and 4.0. The commenter (A-90-19: IV-D-48) reasoned that the requirements are burdensome and unnecessary because reevaluation is required to determine if group status changes when a process change is made.

Several commenters (A-90-19: IV-F-1.1 and IV-F-3; IV-D-32; IV-D-48; IV-D-58; IV-D-62; IV-D-63; IV-D-69; IV-D-83; IV-D-92; IV-D-112; IV-D-113) suggested that monitoring, recordkeeping, and reporting requirements for Group 2 process vents be reduced or eliminated. In particular, three commenters (A-90-19: IV-D-32; IV-D-48; IV-D-69) thought it was overly burdensome for Group 2 process vents to be required to perform the same continuous monitoring, recordkeeping, and reporting as Group 1 vents, because: the Group 2 emission points have been judged not to require additional control; the rule requires TRE to be re-evaluated when process changes are made; and the 112(g) modification program, residual risk determination, and future reviews of MACT standards are sufficient to require future control of Group 2 vents, if warranted. Two commenters (A-90-19: IV-D-58; IV-D-62) suggested that reporting for these Group 2 process vents needs to be limited to notification of changes that may potentially lead to Group 1 designation of the source and develop reporting and testing requirements for sources altered or changed into potential Group 1 sources. Two commenters (A-90-19: IV-D-32; IV-D-113) also supported the requirements to monitor Group 2 process vents only where a recovery device is used to maintain Group 2 status (TRE between 1.0 and 4.0).

Response: The rule requires monitoring, recordkeeping, and reporting requirements for Group 2 vent streams with TRE index values between 1.0 and 4.0 to ensure those vents do not become Group 1 vents due to process or recovery device operating variations and remain uncontrolled. Group 2 vents with TRE index values greater than 4.0 are not required to be monitored. An analysis was performed prior to proposal that shows that a vent with a TRE greater than 4.0 is unlikely to become Group 1 due to process or recovery device operating fluctuations or measurement uncertainties, whereas if a vent has a TRE is less than 4.0, it is important to monitor recovery device operating parameters, because variations in process or recovery device operations could cause such streams to become Group 1. The EPA recognizes the uncertainty present in TRE calculations, but decided that a large enough safety factor has been included for vents with a TRE greater than 4.0. The decision not to require monitoring for process vents with a TRE greater than 4.0 reduces the burden of the regulation for both the industry and regulatory agencies.

Comment: One commenter (A-90-19: IV-D-92) stated that it is not reasonable to require extensive controls for Group 2 process vents because the classification of vents as Group 2 implies that they cause a minimal environmental concern. The commenter (A-90-19: IV-D-92) then asked what is the value added by extensive reporting requirements if there is no problem.

Response: The EPA agrees that controls for Group 2 process vents are not reasonable, and accordingly, the proposed regulation did not require controls for Group 2 vents. Monitoring, reporting, and recordkeeping are required for Group 2 vents to ensure a Group 2 vent does not become a Group 1 vent and go unregulated. A Group 2 vent with a TRE greater than 4.0 is not required to monitor the vent, but must still follow the specified reporting and recordkeeping requirements.

Comment: One commenter (A-90-19: IV-D-34) opposed the monitoring requirements for process vents that qualify as Group 2 through the low flow or low concentration determination and stressed that engineering judgement should be adequate since facilities face penalties if the engineering assessment is found through testing to be incorrect.

One commenter (A-90-19: IV-D-78) proposed that if engineering judgement were allowed for the purpose of Group 1 and Group 2 determination through either the low flow or low concentration clause, a safety factor of 4 be used to exempt streams from monitoring, i.e., for vent streams with flow rates less than 0.00125 scmm or HAP concentration less 12.5 ppmv.

Response: The rule allows three means for determining that a vent is Group 2: TRE calculation, or measurement to verify that the stream is below either the specified flow or concentration level. If an owner or operator wishes to use engineering assessment to determine group status, they can calculate the TRE based on estimates of flow, emissions, and heating value of the vent stream. If the TRE is greater than 4.0, such engineering assessment is sufficient. If the TRE is less than 4.0, tested measurements are required. The low flow and concentration levels are included to reduce the testing burden for small vent streams. They can test only flow or concentration to show the stream is below the 0.005 scmm or 50 ppmv levels instead of doing all of the testing that would be needed to determine TRE. These choices provide sufficient flexibility. To further reduce the burden for Group 2 streams that are unlikely to become Group 1, no monitoring is required for streams with TRE's greater than 4.0 or streams that are below the low flow or concentration levels. Such safety factors as the commenter refers to have already been included in selecting the TRE cut-off value of 4.0 for testing and monitoring.

2.5 WORDING OF THE PROVISIONS

Comment: One commenter (A-90-19: IV-D-68) recommended that exclusions from regulatory requirements, such as monitoring exclusions, be included in each relevant section because the rule is an "enormous document." The commenter included an example that the monitoring exemption for the low flowrate and concentration limits are presented in §63.113(f) and (g) but not in §63.114.

Response: The EPA believes that the monitoring requirements are clearly laid out in the rule. The EPA believes that since there are no flowrate (not to be confused with flow indicator) or concentration monitoring provisions, there is no need to add the exemptions to the monitoring section and increase the volume of the document with redundant information.

Comment: One commenter (A-90-19: IV-D-33) asked that the wording in §63.111 and §63.114(d) referring to "flow indicators" be revised to "flow indication system," which would include computerized flow-metering systems as well as traditional "flow indicators".

Response: The intent of the regulation is not to preclude the use of "flow indicator systems." Rather, the term "flow indicators" includes computerized flow metering systems as well as traditional flow indicators. The intent of the term "flow indicators" is to determine whether or not a flow is present, and record this on a continuous basis. A flow meter capable of measuring flow rate (e.g., scmm) could be used but is not required, because the simple presence of flow in a bypass line is sufficient to detect the bypass of a control device.

Comment: One commenter (A-90-19: IV-D-33) reasoned that the word "replacement" as used in §63.115(e) should be taken to mean a replacement of equipment not in kind, as in the case of changing equipment service or upgrading equipment, since replacement in kind should not be considered a process change.

Response: If the new equipment configuration is identical to the original equipment configuration, and the owner or operator can show by calculation that the parameters are identical between the old and the new configurations, then testing and recalculation of TRE would not be required.

Comment: One commenter (A-90-19: IV-D-33) indicated that the term water vapor had been used incorrectly in a description of Method 4 and should be revised.

Response: The commenter is correct that the term was used incorrectly. The intent is to use Method 4 to measure the moisture content of the stack gas. The regulation has been revised.

Comment: One commenter (A-90-19: IV-D-33) suggested eliminating the word "or" from §63.115(d)(2)(v)(B).

Response: The regulation has been revised to eliminate the word "or" from §63.115(d)(2)(V)(B) since it is unnecessary.

Comment: One commenter (A-90-19: IV-D-33) agreed that the definitions of closed-vent system, control device, process unit, and process unit shutdown should appear in both §63.111 and §63.161 but asked that the definitions be made consistent or the same in both sections.

Response: The EPA agrees with the commenter (A-90-19: IV-D-33) where the differences in the definitions are not necessary. The definitions of closed-vent system and process unit shutdown has been made consistent in §63.111 and §63.161. However, there are intentional differences in the definitions of control device and process vent. The difference in the control device definition is necessary for the process vent requirements and the difference in the process unit definition is based on the subpart in which the term is used.

Comment: One commenter (A-90-19: IV-D-73) stated that production rate should be deleted as an example of a process change in §63.115(e) because production rates are continuously changing in most SOCMI processes.

Response: Section 63.115(e) specifies that if a process change (including production rate) is within the range used to determine inputs to the TRE calculation, the process change does not have to be reported and the TRE does not have to be recalculated. In addition, unintentional temporary changes in production rate are excluded from this process change reporting requirement. However, a change in production rate outside the range used to calculate the TRE for the NCS could result in a change in TRE. For this reason, recalculation of the TRE would be required if a production rate change causes the equation inputs to exceed their initial range.

Comment: One commenter (A-90-19: IV-D-77) requested that the definition of "vent stream" in §63.111 to be the same as "process vent" in §63.101.

Response: The EPA agrees, and the definition of "vent stream" in §63.111 was modified to refer to the "process vent" definition in §63.101.

Comment: One commenter (A-90-19: IV-D-77) requested that the requirements in §63.113 be reorganized to show that proposed paragraphs 63.113(e), (f), and (g) have equal weight and that a source may meet any one of the three criteria, not all criteria.

Response: The EPA believes that the requirements for §63.113 are clear as written in the proposal package; and they remain the same for promulgation.

Comment: One commenter (A-90-19: IV-G-4) recommended a change to the definition of "reactor process." The commenter (A-90-19: IV-G-4) expressed concern that the proposed definition could be interpreted to include product treatment in storage tanks. The commenter (A-90-19: IV-G-4) explained that it is common practice to add hydrogen peroxide, sodium borohydrate, or various inhibitors to storage tanks to maintain product quality or stability. The commenter (A-90-19: IV-G-4) claimed that, although a minor reaction may take place between the product and the added material, the emissions and control techniques are characteristic of storage tanks. The commenter (A-90-19: IV-G-4) suggested that the definition of reactor process should be clarified to exclude the addition of materials to product storage tanks for quality or stability.

Response: The intent of the reactor process definition is to cover a unit operation in which one or more chemicals or reactants are added and the molecular structures are altered to form one or more new organic compounds. Compounds formed during a minor reaction with a treatment chemical described by the commenter (A-90-19: IV-G-4) would be assumed to be present as impurities.

3.0 STORAGE VESSELS

3.1 EMISSION CONTROL TECHNOLOGY

Comment: One commenter (A-90-19: IV-G-4) stated that the EPA should include cooling as a compliance option for storage vessels. The commenter (A-90-19: IV-G-4) explained that this option would involve lowering the temperature of the stored liquid so that the vapor pressure is below the Group 1 applicability level. The commenter (A-90-19: IV-G-4) reasoned that this control strategy would be similar to the one allowing installation of a product recovery device following a process vent to raise the TRE index. The commenter (A-90-19: IV-G-4) stated that adding such a control option would provide an important opportunity for pollution prevention.

Response: The EPA agrees with the commenter (A-90-19: IV-G-4) that lowering the storage temperature of a stored HAP should be allowed to affect Group 1/Group 2 determination. Though the proposed rule did not specify cooling as a compliance option, the proposed rule did allow cooling to be used to lower the HAP's "maximum true vapor pressure" which, in turn, would affect a storage vessel's Group 1/Group 2 status. As defined in the proposed rule, the "maximum true vapor pressure" of a stored liquid is based on the storage temperature of the liquid. A facility that chooses to lower the storage temperature of a liquid HAP in order to reduce the HAP's maximum true vapor pressure below the Group 1 applicability level may treat the storage vessel as a Group 2 vessel and comply with the Group 2 requirements.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-112) recommended that the EPA modify the RCT requirements for control devices to specify 90-percent removal for storage vessels at existing sources and 95-percent removal for storage vessels at new sources. One commenter (A-90-19: IV-D-112) claimed that most existing storage vessels with refrigerated condenser units can only achieve 90- to 93-percent efficiency. The commenter (A-90-19: IV-D-112) claimed that the proposal BID indicated that refrigerated condensers are not capable of meeting the 95-percent efficiency requirement. The commenter (A-90-19: IV-D-112) claimed that existing refrigerated condensers would need to be replaced with new cascade two-stage systems in order to achieve 95-percent efficiency. Another commenter (A-90-19: IV-D-32) made reference to a company that claimed that existing condensers would need to be replaced with new cascade two-stage systems in order to achieve 95-percent efficiency, but the commenter (A-90-19: IV-D-32) did not express concurrence or non-concurrence with the claim. The commenter (A-90-19: IV-D-32) rather stated that many existing refrigerated condensers would need to be replaced with new ones.

One commenter (A-90-19: IV-D-32) stated that the EPA had assumed and not demonstrated that refrigerated condensers that were installed to comply with requirements for 80- to 93-percent removal efficiencies could achieve 95-percent efficiency. Both commenters (A-90-19: IV-D-32; IV-D-112) claimed that the EPA did not consider or justify, as required by section 112(d) of the Act, the cost impact to facilities that would need to replace existing refrigerated condensers with new condensers. The commenters (A-90-19: IV-D-32; IV-D-112) stated that this replacement cost is not warranted based on the small increase in control efficiency.

Response: The impacts of the proposed HON regulation did account for the cost to replace condensers currently achieving

80- and 85-percent control efficiencies with new condensers that can achieve 95-percent efficiency. Furthermore, in assigning new 95-percent-efficient condensers to existing model tanks that previously had 80- and 85-percent-efficient condensers, the EPA assigned both one-stage and two-stage cascade condensers. Multistage systems are discussed on page 2-31 of volume 1B of the proposal BID. As described in the proposal BID, the type of condenser that was assigned to a storage vessel depended on the properties and concentration of HAP's in the vent stream from the storage vessel. Regarding one commenter's (A-90-19: IV-D-112) assertion that the proposal BID indicated that refrigerated condensers are not capable of meeting the 95-percent efficiency requirement, the EPA assumes that this is a misunderstanding on the part of the commenter. The EPA considers this assertion inaccurate.

Regarding condensers that are currently achieving 90-percent control efficiency, in developing the proposed HON regulation, the EPA had assumed that recovery devices required by State regulations to achieve an emission reduction of 90 percent could actually achieve an emission reduction of 95 percent with only a small increase in operating cost, by simply lowering the temperature of the coolant. This original assumption is documented in docket item A-90-19: II-B-6.

After reevaluating the available information, the EPA has concluded that not all condensers currently achieving 90-percent control efficiency will be capable of achieving 95-percent control efficiency. While the EPA has determined that many of these 90-percent efficient condensers could achieve 95-percent control efficiency simply by lowering the temperature of the coolant, there will be certain instances where adjusting the coolant temperature will not achieve the required emission reduction, due to a characteristic of the condensers or of the stored chemical (e.g., high vapor pressure).

The EPA recognizes, based on currently available information, that requiring replacement of existing well-operated and maintained control devices that meet the control efficiency achieved by sources at the floor (i.e., 90 percent emission reduction) would not be justified. This additional control was estimated to cost about $38,000 for each additional Mg of emission reduction achieved by existing sources. Therefore, the EPA has provided an exemption in the final rule for control devices installed on a storage vessel on or before December 31, 1992 achieving at least 90-percent emission reduction.

However, for those storage vessels with a control device achieving less than the floor (i.e., less than 90-percent emission reduction) or for fixed roof tanks not equipped with any control device, the EPA maintains that it is more economically efficient to require 95-percent control, which is based on the existing requirements in 40 CFR part 60 subpart Kb, rather than 90-percent control.

Comment: One commenter (A-90-19: IV-D-58) contended that the proposed storage vessel provisions should allow covers on access hatches and automatic gauge float wells to be either attached or bolted when they are closed. The commenter (A-90-19: IV-D-58) explained that some companies use attached devices rather than bolts to attach a cover or lid to the roof.

Response: The EPA will allow fastening devices in place of bolts to fasten hatches if these devices provide complete compression of the gasket when in use. The wording in §63.119(b)(6) and §63.119(c)(2)(ii) of the storage provisions has been changed, as follows, to allow these fastening devices: "Covers on each access hatch and each gauge float well shall be bolted or fastened so as to be air-tight when they are closed."

Comment: One commenter (A-90-19: IV-D-58) asserted that the proposed requirement that "each roof drain" be provided with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening should apply only to "emergency overflow roof drains". The commenter (A-90-19: IV-D-58) reasoned that a standard roof drain under normal operation does not contain product and should be left unrestricted at all times.

Response: The EPA interpreted this comment (A-90-19: IV-D-58) to mean that a roof drain that does not contain product does not drain into the stored liquid but, rather, drains to a location outside of the storage vessel. The EPA agrees with the commenter (A-90-19: IV-D-58) that a roof drain that drains to the outside of the tank should not require a slotted membrane. The wording of §63.119(c)(2)(vi) of the storage vessel provisions has been changed to reflect this exemption. The phrase "each roof drain" was changed to read "each roof drain that empties into the stored liquid."

Comment: One commenter (A-90-19: IV-D-58) asserted that the storage vessel provisions should provide specifications for how far a metallic shoe seal on an EFR should extend into the stored liquid. The commenter (A-90-19: IV-D-58) stated that this specification was provided for how far the seal should extend above the liquid and explained that the lack of specification about how far it should extend into the liquid could produce "misunderstanding of the concept in the proposed rule".

Response: The EPA determined that §63.120(b)(5)(i) of the storage vessel provisions should not specify the distance that the lower end of a metallic shoe seal on an EFR should extend into the stored liquid. The EPA did not provide this specification in the proposed HON because the distance that the metallic shoe seal extends into the stored liquid has no effect on emissions from the storage vessel. Rather, it is only important that the lower end extends into the liquid or it would be a vapor-mounted seal. The distance a metallic shoe seal must extend into the stored liquid varies according to the seal mechanism. A metallic shoe seal must extend into the stored liquid far enough to allow the weighted mechanism to be attached.

The EPA did specify the vertical distance the upper end of the metallic shoe seal must extend above the liquid surface in order to ensure that adequate contact area is provided between the shoe and the vessel wall.

Comment: One commenter (A-90-19: IV-D-58) contended that the proposed provisions specifying that there shall be no holes, tears, or other openings in the shoe, seal fabric, or seal envelope of the primary or secondary seals of an EFR tank should be changed to allow fabricated holes in the seal for the roof anti-rotation device, i.e., bazooka guide bar.

Response: The EPA would like to clarify for the commenter (A-90-19: IV-D-58) that prefabricated holes are allowed to be part of the seal for the purpose of installing the roof anti-rotation device; however, the storage provision in §63.119(c)(1)(iii) that the seal be "continuous" requires that any prefabricated hole be filled with the anti-rotation device and that a gasket be installed around the anti-rotation device at the prefabricated hole, in order to ensure that the seal is "continuous". As long as each prefabricated hole is filled with and gasketed at the anti-rotation device, the prefabricated hole is not considered to be a "hole" for the purposes of the storage provisions [e.g., paragraph (a)(4) of §63.119 of subpart G], because the prefabricated hole is sealed and would not result in significant HAP emissions.

Comment: Three commenters (A-90-19: IV-D-60; IV-D-86; IV-D-97) advocated the use of vapor balancing as a means of eliminating working losses from storage vessels. One commenter (A-90-19: IV-D-60) recommended that the EPA add a new RCT for storage vessels combining vapor balancing with incremental control of breathing losses to achieve a total emission reduction of 95 percent. The commenter (A-90-19: IV-D-60) added that there should be no requirement to demonstrate compliance of the vapor balancing system but that the engineering demonstration in §63.120(d)(1)(i) of the proposed rule be required for the control device used to control breathing losses. The commenter (A-90-19: IV-D-60) stated that including vapor balancing as an RCT would provide industry with the flexibility to utilize cost-effective technologies to achieve MACT. The commenter (A-90-19: IV-D-60) also stated that this approach would allow industry to utilize existing equipment and equipment with a design criteria less than 95 percent.   The commenter (A-90-19: IV-D-60) provided an example calculation to illustrate combining vapor balancing with a separate control device for incrementally controlling breathing losses.

Response: The EPA will respond to two possible interpretations of the commenters' (A-90-19: IV-D-60; IV-D-86; IV-D-97) suggestions: (1) vapor balancing should be allowed within a tank farm; or (2) vapor balancing should be allowed during transfer between a storage vessel and a transportation vehicle. Regarding the use of vapor balancing within a tank farm, the EPA concluded that this is not a practical way to achieve 95-percent reduction of total organic HAP emissions. Vapor balancing within a tank farm would require excessive monitoring and coordination to ensure that each time liquid is pumped into one tank, liquid is also pumped out of another tank. Therefore, the EPA did not allow vapor balancing as an RCT for storage vessels in the HON.

Regarding the use of vapor balancing during transfer from a storage vessel to a transport vehicle, the EPA allows vapor balancing in the transfer provisions.

Comment: One commenter (A-90-19: IV-D-113) expressed support for the storage vessel provisions allowing floating roofs and capture devices as RCT. The commenter (A-90-19: IV-D-113) considers these controls to meet pollution prevention goals and to have little or no cross-media impact. Another commenter (A-90-19: IV-D-32) expressed support for the EPA's proposal to allow facilities to comply with the storage vessel provisions by installing IFR's or EFR's as an alternative to installing a closed-vent system and control device.

Two commenters (A-90-19: IV-D-86; IV-D-97) requested that the EPA specifically designate pollution prevention measures in the storage vessel provisions. One commenter (A-90-19: IV-D-103) expressed concern that the proposed storage vessel provisions are inconsistent with pollution prevention goals. The commenter (A-90-19: IV-D-103) asserted that flares and other treatment systems to control collected emissions should not be allowed for new vessels and suggested that closed-loop recovery systems be required for new storage vessels. The commenter (A-90-19: IV-D-103) added that the EPA should explore the possibility of requiring closed-loop vapor recovery systems for multiple new storage vessels since the cost would be the same as installing floating roofs on the individual new storage vessels.

Two commenters (A-90-19: IV-D-86; IV-D-97) suggested that control of liquid level in a tank is another pollution prevention measure that can eliminate working losses with minimal investment and cost. The commenters (A-90-19: IV-D-86; IV-D-97) also suggested tying vents of tanks in a farm together with overall inlet/outlet control and inert gas blanketing. The commenters (A-90-19: IV-D-86; IV-D-97) added that in the context of the proposal BID model, using these methods would reduce emissions by only 80 percent. One commenter (A-90-19: IV-D-97) explained that this was due to other important operating practices not being recognized. The commenter (A-90-19: IV-D-97) implied that, if these other operating practices were recognized, that vent gas blanketing could achieve greater than 80-percent emission reduction.

Response: The EPA allows pollution prevention measures in the HON storage provisions. The storage provisions require floating roofs as RCT's; floating roofs are also pollution prevention measures. The storage provisions also allow condensers to be used to achieve 95-percent reduction of total organic HAP emissions from storage vessels, and condensers are closed-loop recovery systems. The EPA considered the possibility of allowing control of liquid level to achieve emission reductions but concluded that control of liquid level could not achieve 95-percent reduction of total organic HAP emissions from storage vessels.

Regarding the use of inert gas blanketing, the EPA did not include this pollution prevention measure in the storage provisions because the EPA has no data demonstrating that this measure can reduce total organic HAP emissions from storage vessels by 95 percent. The commenters (A-90-19: IV-D-86; IV-D-97) did not provide any information or data to specify that inert gas blanketing could actually achieve 95-percent emissions reduction. The EPA contacted the commenter for clarification on this issue, but the EPA did not receive any clarifying information.

Comment: One commenter (A-90-19: IV-D-103) stated that the HON provisions for existing storage vessels should include specific requirements that slotted guidepoles contain a float to reduce emissions.

Response: The EPA agrees with the commenter's (A-90-19: IV-D-103) statement. The proposed HON storage provisions for EFR vessels at new and existing sources do include the requirement for slotted guidepoles to be equipped with a float (see §63.119(c)(2)(viii)(B) of the proposed HON regulation).

This requirement has been retained in §63.119(c)(2)(x) of the final rule.

Comment: One commenter (A-90-19: IV-D-103) contended that the EPA is required by the Act to require submerged fill pipes for new and existing storage vessels between 250 and 40,000 gallons that are not controlled via floating roofs or closed-vent systems and control devices. The commenter (A-90-19: IV-D-103) explained that Louisiana, which contains 16 percent of the country's SOCMI process units, has this requirement for vapor pressures greater than 10.3 kPa, and Texas, which has 34 percent of the country's SOCMI process units, has the same requirements for storage vessels between 1,000 and 25,000 gallons and vapor pressures greater than 10.3 kPa.

Response: Regarding storage vessels with capacities under 10,000 gallons, the EPA did not collect data on control levels achieved by these storage vessels and is not regulating these smaller storage vessels. Regarding vessels with capacities between 10,000 and 40,000 gallons, these vessels are not splash-filled; rather, submerged fill is the standard practice and represents the baseline level of control. Therefore, the EPA concludes that there would be no emission reduction benefits from the suggested requirement and that the additional requirement would represent only an additional recordkeeping burden.

Comment: One commenter (A-90-19: IV-D-103) asserted that the HON must require that all new storage vessels have both liquid-mounted primary seals and secondary seals, and that all new vessels not using a closed-vent system and control device have welded rather than bolted deck seams and no column penetrations. The commenter (A-90-19: IV-D-103) contended that these additional controls are required to meet MACT as prescribed in the Act, which is "the maximum degree of reduction in emissions" achieved by the "best controlled similar source." The commenter (A-90-19: IV-D-103) further asserted that the EPA is obligated to investigate the possibility that 12 percent or more of existing sources meet the emission level achieved with these additional controls and to require these more stringent controls for existing vessels if at least 12 percent are currently achieving these higher control levels.

Response: The EPA has concluded that these additional controls are not required as the MACT floor for new or existing sources and are not incrementally cost-effective enough to require above the MACT floor. There is no existing standard that requires welded deck seams, no column penetrations, liquid-mounted primary seals, and secondary seals; the EPA has not located any one source that implements all four additional controls.

3.2 IMPACTS ANALYSIS

3.2.1 Cost Impacts

Comment: One commenter (A-90-19: IV-D-41) stated that the HON cost estimates did not account for the cost savings in products or reactants associated with the application of recovery devices or the application of more efficient controls such as floating roofs on storage vessels. The commenter (A-90-19: IV-D-41) explained that failure to account for such cost savings prejudices the cost analysis toward overestimating costs.

Response: The EPA agrees with the commenter (A-90-19: IV-D-41) that the cost savings incurred by the use of recovery devices and floating roofs should be included in the cost analysis of the HON. The EPA did include this cost savings in the cost analysis for applying recovery devices (i.e., condensers and floating roofs) on storage vessels. As described in the proposal BID (BID volume 1C, section 4.4, pp. 4-17 and 4-20), the value of the recovered chemical was either the actual market price of the chemical or, if the market price was not available, a default value for the average chemical price (i.e., $1.57/kg), and the value of the chemical recovered was subtracted from the total cost of the recovery device.

Comment: Three commenters (A-90-19: IV-D-32; IV-D-86; IV-D-97) urged the EPA to use more accurate investment estimates when evaluating costs of control systems. The commenters (A-90-19: IV-D-32; IV-D-86; IV-D-97) recommended that the EPA redo its cost analysis because, in their opinion, the EPA had underestimated capital investment for control systems by a factor of 2 to 5. Two commenters (A-90-19: IV-D-86; IV-D-97) stated that because the annual cost effectiveness for storage vessels is sensitive to investment, it is important that the EPA use more accurate investment estimates.

Three commenters (A-90-19: IV-D-32; IV-D-68; IV-D-97) provided the same data indicating that the EPA's estimate of the capital costs for installing an IFR on an existing fixed roof storage vessel is low for two reasons: (1) the EPA's estimated capital cost, which is based on vendor quotes, is lower than the vendor quote obtained by the commenters, and (2) in general, vendor quotes underestimate the installation cost for IFR's because they do not account for additional tank repairs (i.e., upgrading column supports) that are discovered after a tank has been emptied for the retrofit. The data provided by two commenters (A-90-19: IV-D-32; IV-D-97) indicates that for the capital cost of purchasing and installing a 100-foot diameter fiberglass IFR on a 2,000,000 gallon tank containing methanol, the EPA-estimated capital investment is $50,000, whereas the vendor-quoted cost was $150,000 and the actual cost was $250,000. The data provided by two commenters (A-90-19: IV-D-32; IV-D-68) indicate that the cost for installing an IFR on a 1,500,000 gallon storage vessel containing methyl methacrylate is $180,000 (excluding the cost of tank repairs performed to accommodate the IFR).

One commenter (A-90-19: IV-D-97) asserted that the EPA underestimated the cost to install a control device on a fixed roof storage vessel, because the EPA did not account for start-up costs such as "prove-out" and "haz-op".

<u>Response</u>: The EPA considered the comment that EPA's capital cost estimates for installing an IFR into an existing fixed roof storage vessel are lower than the commenters' (A-90-19: IV-D-32; IV-D-68; IV-D-97) vendor-quoted estimates. The EPA determined that the difference in estimates for capital costs is due to the type of IFR being costed. The EPA's cost estimate of $50,000 is for a 100-foot diameter aluminum IFR, while the vendor-quoted estimate of $150,000 provided by the commenters (A-90-19: IV-D-32; IV-D-97) is for a 100-foot fiberglass IFR, which is much more expensive. The EPA speculates, due to lack of information provided by the commenter (A-90-19: IV-D-68), that the vendor-quoted estimate of $180,000 provided by the commenter (A-90-19: IV-D-68) is for a fiberglass or steel IFR, rather than for an aluminum IFR. The EPA's cost estimates are based only on aluminum IFR's because, as described in the cost analysis in the proposal BID, IFR's were assigned to storage vessels only when the stored chemical would be compatible with aluminum. Therefore, the EPA will not change its vendor quotes for aluminum IFR's.

The EPA's cost analysis indirectly accounts for the added expense of installing a fiberglass or steel IFR, in those cases where an aluminum IFR would be incompatible with the stored chemical. In its cost analysis, the EPA assigned and costed aluminum IFR's only for those existing storage vessels that contained compounds that would not be corrosive to aluminum, such as halogenated chemicals and some glycol ethers. For all vessels containing chemicals corrosive to aluminum, the EPA assigned and costed refrigerated condensers, rather than fiberglass or steel IFR's. The cost of refrigerated condensers is comparable to the cost of fiberglass and steel IFR's. For example, for an 85-foot diameter vessel storing a chemical with a vapor pressure of 1.51 psia, the EPA's cost estimate for installing a condenser is $83,500. For a 32-foot diameter vessel storing a chemical with a vapor pressure of 7.12 psia, the EPA's cost estimate for installing a condenser is $264,000. These costs for condensers are comparable with the cost of installing fiberglass or steel IFR's reported by the commenters ($130,000 to $180,000).

Regarding the comment that the EPA should not use vendor quotes because actual costs are higher than vendor quotes due to additional repairs, the EPA determined that these additional repairs are not necessarily typical for installing IFR's. The EPA's cost estimate for installing IFR's includes the cost of those repairs typically necessary to convert a fixed roof tank to an IFR tank (i.e., the cutting of vents and openings for modifying a vessel). The commenter (A-90-19: IV-D-97) provided a list of additional repairs and their associated costs, including, for example, upgrading the leg supports of a floating roof for a cost of $100,000. However, the EPA concluded that the additional repairs suggested by the commenter are not typically necessary for retrofitting a storage vessel with an IFR. In some cases, these repairs would need to be performed regardless of the IFR retrofit. Therefore, the EPA considers its vendor quote for installing IFR's to be valid.

Regarding the comment that the EPA underestimated the cost of installing a control device on a fixed roof storage vessel due to the added costs for equipment start-up, the EPA agrees with the commenter (A-90-19: IV-D-97) that the installation cost for condensers, which was the only type of control device included in the EPA's cost analysis for storage vessels, should reflect additional costs for start-up. At proposal, the EPA had utilized the costs provided in chapter 8 of Supplement 1 to the EPA's OCCM, Fourth Edition, PB92-137181, November 1991 for installing packaged (i.e., non-custom) refrigerated condensers. In reviewing the OCCM's costing equations for condensers, the EPA determined that the cost equation for non-packaged refrigerated condensers includes more of the start-up costs (e.g., for testing the equipment after installation) than the cost equation for packaged systems. The EPA concluded that these additional start-up costs should be accounted for, because sources will be required to test their new equipment to ensure that it consistently operates as described in the design evaluation provided to the implementing agency for compliance purposes. Therefore, the EPA has changed the equation for the installation cost to include start-up costs by utilizing the equation provided in the OCCM for non-packaged condensers.

Comment: One commenter (A-90-19: IV-D-97) contended that the price of the product used in the model tank in the proposal BID is not a reasonable value. The commenter (A-90-19: IV-D-97) noted that the price for methanol, which is a common chemical used throughout the industry, is one-third the value used for the model tank product.

Response: The EPA agrees with the commenter that the price of methanol is less than the price of the example product indicated in the proposal BID. As indicated on pages 4-17 and 4-20 of section 4.0 of volume 1C of the proposal BID, in its analysis, the EPA used chemical prices specific to the chemicals stored in the model tank farms whenever they were available. In the case of methanol, EPA used a price of $0.35/kg. For those chemicals for which no price was available, such as for the model tank farm described referred to by the commenter (A-90-19: IV-D-97), an average price of $1.57/kg was used.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-97) suggested that the cost in the proposal BID for cleaning a tank for conversion is low. One commenter (A-90-19: IV-D-97) indicated that the cost seems to be based on conversion of gasoline or light petroleum products and therefore underestimates cleaning costs for other products. The commenter (A-90-19: IV-D-97) stated that cleaning a 50,000-gallon tank at a specific site costs $100,000. The commenter (A-90-19: IV-D-97) stated that this cost is more than the EPA's estimate. One commenter (A-90-19: IV-D-32) compared the EPA's estimated cost of $13,000 for cleaning a 2,000,000 gallon vessel to two companies' actual cleaning costs of $1,000,000 (cleaning and disposal) for a 1,000,000 gallon vessel and $208,000 (cleaning and repairs/changes to accommodate the new IFR) for a 1,500,000 gallon vessel.

Response: The EPA agrees with the commenters that the cost of sludge disposal should be added to the cost of cleaning and degassing a storage vessel. The EPA has added the cost of sludge disposal, based on the assumption that disposal will cost $5 per gallon of sludge and that each storage vessel will contain two inches of sludge for disposal. These assumptions are documented in the EPA document entitled "Internal Instruction Manual for ESD Regulation Development: Storage Vessels," Office of Air Quality Planning and Standards, Research Triangle Park, NC, January 1993. These costing assumptions result in a total cleaning and degassing cost (including sludge disposal) of about $3,500 (1989 dollars) for a 40,000-gallon tank assumed to have a diameter of 19 feet, and $26,400 for a 1,000,000-gallon tank assumed to have a diameter of 60 feet.

The EPA's revised estimates for cleaning and degassing storage vessels, which includes sludge disposal costs, are lower than the costs provided by the commenters. However, the cost estimates for cleaning and degassing storage vessels provided by the commenters (A-90-19: IV-D-32; IV-D-97) were not substantial enough to justify the EPA's changing its own cost estimates, which were reviewed by tank service companies that handle SOCMI storage vessels. The cost estimates provided by the commenters were not substantial enough because: (1) they were not detailed enough to explain why the costs were high for the specific storage vessels mentioned (e.g, the nature of the stored chemical); and (2) they only represented a couple of example tanks that do not necessarily represent typical costs for the whole industry. Therefore, the EPA will continue to utilize its own cost estimates for cleaning and degassing storage vessels.

Comment: One commenter (A-90-19: IV-D-97) stated that the EPA failed to consider that tanks in the chemical industry, unlike the gasoline refining industry, may have been in a variety of chemical services since being built, and as a result, when conversion is required, old nozzles, etc. may have to be removed, upgraded, or replaced.

Response: The EPA did not include the cost of removing or upgrading nozzles on storage vessels in estimating capital costs for installing IFR's because the EPA does not consider upgrading nozzles to be a change that will be made for the average fixed roof storage vessel retrofit. Additionally, the EPA does not anticipate that, for those vessels requiring a nozzle upgrade, the cost will be significant relative to the total capital cost of installing IFR's.

3.2.2 Emission Estimates

Comment: Two commenters (A-90-19: IV-D-32; IV-D-62) recommended that the EPA update the storage vessel equations in the final HON to reflect the latest changes in the EPA document entitled "Compilation of Air Pollutant Emission Factors (AP-42)." The commenters (A-90-19: IV-D-32; IV-D-62) noted that the EPA published a "Supplement E" to AP-42 in October 1992 which contains a new Chapter 12 entitled "Storage of Organic Liquids". One commenter (A-90-19: IV-D-62) indicated that the new equations for fixed roof storage vessels would impact the EPA's cost and emissions analysis for storage vessels.

Response: The EPA has determined that the 1992 version of the AP-42 equations for fixed roof storage vessels would not significantly impact the EPA's cost and emissions analysis for storage vessels. As discussed in a memorandum entitled, "Review of API Publication 2518--Evaporative Loss from Fixed Roof Tanks--Preliminary Technical Evaluation of New Emissions Data and New Emission Factors," the EPA considered the difference between the 1992 and the 1985 AP-42 equations for fixed roof storage vessels by calculating breathing loss emissions with both sets of equations, using both actual test parameters and default values. After comparing the results of the two sets of equations with the actual test results of the breathing losses, the EPA concluded that the 1985 and 1992 AP-42 equations provide comparable predictions of breathing loss for petrochemicals.

Additionally, in comparing the 1985 and 1992 AP-42 equations, the EPA determined that the 1992 AP-42 equations are more site-specific than the 1985 AP-42 equations and will require sources to make more measurements of tank parameters because the EPA cannot provide default values for some of the variables in the 1992 equations. Therefore, the EPA will retain the 1985 AP-42 equations for storage vessel emissions in the regulation. However, the EPA has decided that sources should be given a choice to use either set of equations for the breathing losses from fixed roof storage vessels, by incorporating by reference the American Petroleum Institute

Publication 2518: Chapter 19, Section 1 - Evaporative Loss from Fixed-Roof Tanks, Second Edition, October 1991. Although the EPA will allow sources to choose either set of equations for breathing losses from fixed roof storage vessels, the source must use the same set of equations for estimating both credits and debits from storage vessels for emissions averaging.

3.3 APPLICABILITY AND GROUP 1/GROUP 2 DETERMINATION

3.3.1 Applicability

Comment: One commenter (A-90-19: IV-D-68) stated that the vapor pressure threshold for Group 2 tanks should be set above 1.0 psia. The commenter (A-90-19: IV-D-68) contended that the EPA had underestimated the cost to retrofit a methyl methacrylate tank with a floating roof. The commenter (A-90-19: IV-D-68) reported that such a retrofit would cost $389,000 (including installation of a floating roof, tank cleaning, and sludge disposal) and would result in emissions reductions of 11.2 Mg per year, yielding a cost-effectiveness of $35,000/Mg. The commenter (A-90-19: IV-D-68) indicated that this cost-effectiveness exceeds the $3,400/Mg listed in the proposal preamble to justify the Group 1/Group 2 applicability criteria. The commenter (A-90-19: IV-D-68) concluded that in order to maintain the $3,400/Mg cost, the vapor pressure cutoff should be set above 1.0 psia which is approximately the vapor pressure of methyl methacrylate.

Response: The EPA wishes to clarify that cost-effectiveness is based on annualizing capital costs over the life of the equipment (i.e., 10 years). The cost-effectiveness value of $35,000 suggested by the commenter (A-90-19: IV-D-68) was not calculated in this manner. Using the values provided by the commenter (A-90-19: IV-D-68), the EPA calculated the cost-effectiveness for the single storage vessel containing methyl methacrylate. If the capital cost of $389,000 is multiplied by 0.263 (0.163 for capital recovery;

0.04 for taxes, insurance, and administrative charges; 0.05 for maintenance charges; and 0.01 for inspection charges), the total annual costs (without considering the cost savings associated with the product saved) are $102,310. The value of the product saved (assuming a product value of $1.28/kg) is $1,280/Mg multiplied by 11.2 Mg of emissions reduced, which yields $14,336/yr. The annual cost savings from saved product, $14,336/yr, is subtracted from $102,310/yr, which yields $87,974 as the net annual costs. The cost-effectiveness is calculated by dividing the net annual costs, $87,974/yr, by the estimated annual emissions reduction, 11.2 Mg/year, which yields approximately $7,900/Mg.

The EPA understands that the cost-effectiveness varies for specific chemicals and specific storage vessels. However, the decision to establish a standard above the MACT floor is based on the average cost-effectiveness, not on the cost-effectiveness of an individual chemical. The corrected value of $7,900/Mg, based on the commenter's (A-90-19: IV-D-68) provided data is not unreasonably higher than the average cost-effectiveness value of $3,400/Mg cited in the proposal BID. Therefore, the EPA will not revise the cost-effectiveness value of $3,400/Mg developed for the proposed rule. The EPA maintains that this is a reasonable cost for controls above the MACT floor.

Comment: One commenter (A-90-21: IV-D-1) requested that the vapor pressure cutoff for determination of Group 1 status of storage vessels at new sources be increased to 5.2 kPa for vessels with capacity greater than 151 cubic meters. The commenter (A-90-21: IV-D-1) questioned the need to require control of vessels storing chemicals with vapor pressures below 5.2 kPa, stating that emissions from such vessels would be low. The commenter (A-90-21: IV-D-1) specifically objected to the fact that formaldehyde storage would be subject to the rule. The commenter (A-90-21: IV-D-1) reasoned that closed-vent systems and control devices would be very expensive, and floating roofs would be impossible to use because formaldehyde is stored in heated and agitated vessels. The commenter (A-90-21: IV-D-1) explained that the concentration of HAP in the head space over a liquid with such a low vapor pressure would be very low, offering no fuel value such that thermal destruction would require the added expense of supplemental fuel. The commenter (A-90-21: IV-D-1) also stated that the use of wet scrubbers on low concentration vent streams is generally not efficient, and consistent achievement of 95-percent removal of total organic HAP emissions would be unlikely. The commenter (A-90-21: IV-D-1) further reasoned that, since floating roofs may not be used on formaldehyde, those vessels located at a distance from control devices would require investment in extensive piping and blower systems.

Response: In proposing the vapor pressure threshold of 0.7 kPa for large storage vessels at new sources, the EPA considered the cost of control. For storage vessels that will store liquids incompatible with an aluminum floating deck (e.g., formaldehyde), the EPA assigned and costed a closed-vent system and control device (i.e., refrigerated condenser). The EPA determined that the cost of requiring control devices is reasonable, given the emission reduction achieved.

The commenter (A-90-21: IV-D-21) did not supply any data indicating that a control device would be more expensive for a storage vessel storing formaldehyde than for a storage vessel storing other HAP liquids incompatible with aluminum. Therefore, the EPA sees no need to change the proposed vapor pressure cutoff of 0.7 kPa for large storage vessels at new sources.

Comment: One commenter (A-90-19: IV-D-97) asserted that the vapor pressure threshold for large existing tanks should be raised to 1.0 psia and for large new tanks to 0.5 psia. The commenter (A-90-19: IV-D-97) explained that the economic analysis associated with the model tanks in the proposal BID contain underestimates of cost and overestimates of the savings. Section 3.2.1 of this BID volume lists specific cost examples provided by the commenter (A-90-19: IV-D-97).

Response: As discussed in section 3.2.1 of this BID volume, the EPA revised some of the assumptions in the cost analysis for storage vessels. As a result, the average cost-effectiveness of the selected vapor pressure threshold for MACT for large storage vessels at existing sources increased only slightly, from $1,500/Mg at proposal to $2,000/Mg at promulgation.

Comment: One commenter (A-90-19: IV-D-103) contended that the EPA is required by the Act to regulate new and existing storage vessels with capacities of 25,000 to 40,000 gallons containing organic HAP's with vapor pressures of 10.3 kPa or greater, rather than 13.1 kPa or greater. The commenter (A-90-19: IV-D-103) explained that Texas, which presumably has more than 12 percent of the nation's storage vessels, requires control of such tanks. The commenter added that Congress did not intend for the EPA to consider "economic efficiency" in regulatory decision-making.

Response: The EPA wishes to clarify that although Texas has more than 12 percent of the storage vessels in the SOCMI, it does not necessarily follow that these 12 percent of SOCMI vessels all are in the size category between 25,000 and 40,000 gallons capacity. The EPA found the MACT floor for both new and existing sources in the smaller size category to be 13.1 kPa and determined any additional control above the MACT floor not to be cost-effective. Contrary to the commenter's statement, the EPA is directed to consider cost-effectiveness when considering whether to establish a MACT standard above the MACT floor.

3.3.2 Group 1/Group 2 Determination

Comment: One commenter (A-90-19: IV-D-68) stated that the EPA should include turnover rate as a criterion in the determination of Group 1/Group 2 status for storage vessels. The commenter (A-90-19: IV-D-68) claimed that the EPA overestimated tank emissions and therefore underestimated the cost per Mg of emission reductions by basing the analysis on a worst case turnover factor.

Response: In order to include turnover rate in the determination of Group 1/Group 2 status for storage vessels, a source would need to be able to ensure its turnover rate for each vessel. The EPA based the analysis on worst-case turnover rates (e.g., ranging from 11 turnovers per year for 2,000,000-gallon tanks to 372 turnovers per year for 10,000-gallon tanks) because the EPA concluded that no practical method exists for a source to ensure its turnover rate.

Comment: Three commenters (A-90-19: IV-D-79; IV-D-86; IV-D-97) favored use of a mass emission limit and/or concentration cutoff, as alternatives to storage vessel size and vapor pressure, for Group 1/Group 2 status determination for the storage vessel provisions.

Two commenters (A-90-19: IV-D-86; IV-D-97) contended that the cost of controlling smaller tanks with the specified RCT is unjustified. The two commenters (A-90-19: IV-D-86; IV-D-97) maintained that the HON proposal BID states that emissions from smaller tanks are half the emissions from the model tank. Both commenters (A-90-19: IV-D-86; IV-D-97) considered concentration, mass, or flows more appropriate.

Response: The EPA had considered the option of using a concentration threshold or mass emission limit as the format for the storage vessel standard; however, the EPA concluded that this format either would result in higher cost or would be technically infeasible.

The EPA concluded that establishing an emission limit for IFR storage vessels would be economically infeasible. Equipping each storage vessel with a capture and stack system would require that the vessel vents be sealed and that the emissions be transported to a measurement system. In most cases, the closure of the vessel vents would require the vessel to be blanketed with inert gas to prevent the formation of explosive flammable mixtures in the vessel or the measurement system. This would be economically impracticable considering that the sole purpose of the system would be for emissions testing.

The EPA concluded that establishing an emission limit for EFR vessels would be technically infeasible. It is technologically impossible to equip EFR vessels with a closed-vent system because these vessels are open to the atmosphere. Whereas it is possible to equip EFR vessels with fixed roofs, such a change would convert the vessels into IFR vessels, and the rationale for not establishing an emission limit for IFR vessels would still hold.

The EPA concluded that establishing an emission limit for storage vessels that are controlled with closed-vent systems and control devices would be impracticable due to the considerable variability in mass emissions from fixed roof vessels. Mass emissions from these vessels vary as a function of vessel capacity, vapor pressure of the stored liquid, molecular weight of the stored liquid, and utilization rate of the storage vessel. Because of the wide variation in the amount of emissions of HAP vapors, a mass emission limit could not be selected that would be achievable on a worst-case basis (i.e., large vessel capacity, high vapor pressure, and high utilization rate), and at the same time would not allow the construction of closed-vent systems and control devices that are less effective than MACT for other vessels.

The EPA disagrees with the comment (A-90-19: IV-D-86; IV-D-97) that the cost of controlling smaller tanks with the specified RCT is unjustified. In the analysis to determine the MACT floor level of control for storage vessels, the EPA divided the population of model vessels into three size ranges: small, medium, and large. For the small and medium size ranges, the EPA concluded that both new and existing storage vessels should be controlled at the MACT floor level, which is the least stringent level of control allowed by section 112 of the Act. The EPA chose not to establish emission control requirements more stringent than the MACT floor for new and existing small and medium storage vessels because the costs were considered high given the very small potential emission reductions.

Regarding the comment (A-90-19: IV-D-86; IV-D-97) that the HON proposal BID states that emissions from smaller tanks are half the emissions from the model tank, the EPA assumes that this is a misunderstanding on the part of the commenter. The EPA considers this statement inaccurate.

Comment: One commenter (A-90-19: IV-D-58) objected to the proposed provision that vapor pressure determination be based on true vapor pressure. The commenter (A-90-19: IV-D-58) asserted that the vapor pressure value for Group 1/Group 2 determination should rather be based on a normalized temperature value, such as 70 ^{o}F. The commenter (A-90-19: IV-D-58) acknowledged that normalizing temperature may require different vapor pressure values according to geographic region to reflect temperature differences between climates. The commenter (A-90-19: IV-D-58) reasoned that the true vapor pressure could vary for a product depending on storage conditions, thus pushing the maximum true vapor pressure above a HON applicability threshold for vapor pressure. The commenter (A-90-19: IV-D-58) reasoned that a normalized value would avoid changes that temperature effects could have on control requirements.

Response: The EPA concluded that one vapor pressure value based on maximum true vapor pressure is the most practical format for the provisions. The commenter's (A-90-19: IV-D-58) suggestion to establish regional vapor pressure values according to a normalized temperature does not address those storage vessels that store liquid HAP's below or above the ambient temperature. Furthermore, developing multiple vapor pressure values according to geographic region would add unnecessary complication to the storage provisions.

The EPA considered the commenter's (A-90-19: IV-D-58) concern that, because temperature varies from year to year, the maximum true vapor pressure will vary enough to affect the control requirements necessary to comply from year to year with the HON provisions. However, the EPA has determined that the local maximum monthly average temperature, by which the maximum true vapor pressure is determined for the purpose of Group 1/Group 2 determination, does not vary enough year to year to change the maximum true vapor pressure enough to affect a storage vessel's Group 1/Group 2 status or specific control requirements under the HON.

Comment: One commenter (A-90-19: IV-D-33) contended that the proper basis for determining Group 1/Group 2 status is not the true vapor pressure of the organic HAP being stored but rather the partial pressure of the component of concern in the vapor above the liquid. The commenter (A-90-19: IV-D-33) defined the partial pressure as equivalent to the vapor pressure of the component of concern, multiplied by the concentration of the component of concern in mole fraction, multiplied by the activity coefficient for the component of concern in the liquid mixture. The commenter (A-90-19: IV-D-33) suggested rewording for proposed §63.119(a)(1) and (2) and §63.120(b)(1) of subpart G.

Response: The EPA agrees with the commenter (A-90-19: IV-D-33) that the regulation should be based on the equilibrium partial pressure exerted by the total organic HAP's in the stored liquid. Both the proposed and promulgated versions of the HON include this specification in the definition of "maximum true vapor pressure" in §63.111 of subpart G.

3.4 COMPLIANCE

3.4.1 General

Comment: Regarding the compliance requirements for closed-vent systems and control devices, one commenter (A-90-19: IV-D-89) contended that smaller combustion devices with a minimum residence time of 0.5 seconds and a minimum temperature of 560 ^{o}C should meet the 95-percent emission reduction requirement.

Response: The EPA concluded that the minimum residence time of 0.75 seconds and minimum temperature of 816 ^{o}C specified in the storage provisions in §63.120(d)(1)(i)(B) for enclosed combustion devices should be replaced with a minimum residence time of 0.5 seconds and a minimum temperature of 760 ^{o}C. The EPA is reducing the residence time and temperature in the storage provisions for control devices in order to make the storage provisions consistent with the transfer and wastewater provisions in the HON. In reviewing the proposed provisions for the three emission points, the EPA determined that two sets of minimum residence time and temperature requirements had been proposed for the three emission points, and both sets of requirements were intended to achieve greater than or equal to 95 percent emission reduction. The EPA chose the least stringent of the proposed requirements for control devices utilized on storage vessels, as specified above.

This change to the minimum residence time incorporates the commenter's (A-90-19: IV-D-89) suggested minimum residence time. However, the EPA concluded that it would not reduce the minimum temperature to 560 ^{o}C. The data currently available to the EPA supports a minimum temperature of 760 ^{o}C, but does not support or refute the commenter's suggestion of 560 ^{o}C. The commenter (A-90-19: IV-D-89) did not provide supporting data to the EPA.

Comment: One commenter (A-90-19: IV-D-78) requested that the storage vessel provisions requiring a closed-vent system and control device include the option of complying with a 20 ppmv outlet concentration limit as an alternative to the 95-percent reduction requirement. The commenter (A-90-19: IV-D-78) reasoned that the proposed provisions for other emission points included an outlet concentration limit in addition to a percent reduction requirement.

Response: The EPA did not specifically require a 20 ppmv outlet concentration as an RCT for storage vessels because this type of RCT would require a more rigorous analysis, including a performance test. The HON storage provisions require only a design evaluation for any control devices utilized to meet the 95-percent emission reduction standard. The EPA maintains that there is no reason to increase the stringency of the storage provisions by requiring a performance test to comply with an RCT. Furthermore, the EPA would consider it unreasonable to demonstrate compliance with a performance test because the flow of organic HAP into a control device from a storage vessel is highly variable.

The EPA interpreted the commenter (A-90-19: IV-D-78) to be concerned that a source would be required to submit two separate initial compliance reports for a control device utilized for both storage vessel and process vent emissions, in which case the HON might appear to require a source to submit both a design evaluation for storage showing 95-percent emission reduction and a performance test for process vents showing 98-percent emission reduction. The EPA does not intend to require this redundant reporting. The EPA has added a provision to §63.120(d)(1) of the final rule that allows a source to submit, in place of a design evaluation, the results from a performance test that are submitted as part of the Notification of Compliance Status for compliance with the process vent, transfer, or wastewater provisions of the HON. The results of the performance test must demonstrate that the control device achieves the emission reduction level required by the storage provisions.

Comment: One commenter (A-90-19: IV-D-77) interpreted the proposed provision in §63.119(b)(2) to preclude normal operation of a storage tank's liquid level below that at which an IFR rests upon its leg supports. The commenter (A-90-19: IV-D-77) claimed that this requirement would amount to an approximate 5 to 20 percent loss in working inventory capacity in tanks ranging from 10 to 40 feet tall, assuming a typical leg support height of 2 feet. The commenter (A-90-19: IV-D-77) indicated that the liquid level is not routinely kept at the 0 to 2 foot level range and that operating at this low level is not a wise use of equipment resources, but that a small fraction of the operating time some tanks do fall to this level by design because a storage vessel is an inventorying vessel with the intent of matching variable flows to steady flows.

The commenter (A-90-19: IV-D-77) contended that the EPA had not fully considered the economic and environmental impact associated with the provision. The commenter (A-90-19: IV-D-77) contended that the EPA should re-evaluate these impacts and include the cost of, and marginally increased air emissions associated with, new tanks built to recover the lost inventory capacity. The commenter (A-90-19: IV-D-77) reasoned that the operating limitation in §63.119(b)(2) would worsen emissions by its inclusion as opposed to its omission from the rule and contended that the costs and operating management burden associated with the provision were not justified.

Response: The EPA has concluded that the provision in the HON that requires that "the process of filling, emptying, or refilling" a storage vessel shall be "continuous and shall be accomplished as soon as possible" during times when "the floating roof is resting on the leg supports" will not cause a reduction in a source's inventory capacity and will not preclude normal operation of a storage vessel. As stated by the commenter (A-90-19: IV-D-77), normal operation of a storage vessel does not involve routinely resting the floating deck on the leg supports. The EPA agrees with the commenter (A-90-19: IV-D-77) that routinely resting the deck on the leg supports would not be a wise use of the equipment or storage space. The intent of the requirement is to ensure that all facilities establish the standard operating practice of not resting the deck on the leg supports and minimize the amount of time that the deck does rest on the leg supports.

The EPA would like to clarify the wording of the provisions, that the process of filling, emptying, or refilling "shall be continuous and shall be accomplished as soon as possible." This phrase implies that the activity of filling, refilling, or emptying a vessel must meet both criteria (i.e., "continuous" and "as soon as possible"). The phrase "as soon as possible" is included in the provisions to account for situations where a source has difficulty with continuously filling, refilling, or emptying a vessel. The interpretation of the phrase will ultimately be determined by the implementing agency. Additionally, the EPA added a note prior to both paragraphs (b)(1) and (c)(3) of §63.119 of the final rule that clarifies the meaning of this regulation language, which states that the intent of the provisions is to avoid having a vapor space between the floating roof and the stored liquid for extended periods.

3.4.2 Routine Maintenance

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-34; IV-D-69; IV-D-73; IV-D-79; IV-D-86; IV-D-89; IV-D-92; IV-D-97; IV-D-112; IV-D-113) (A-90-21: IV-D-7; IV-D-17) asserted that the allowance in the proposed storage vessel provisions of 72 hours for routine maintenance of a closed-vent system and control device is insufficient. Several commenters (A-90-19: IV-D-34; IV-D-69; IV-D-79) (A-90-21: IV-D-7) made the general statement that repair of various control devices, including flares, incinerators, boilers, thermal oxidizers, and water scrubbers, would require more than the 72 hours per repair or per year. Three commenters (A-90-19: IV-D-34; IV-D-112) (A-90-21: IV-D-7) stated that boilers and incinerators require time for a systematic cooldown period, for obtaining safety approval to open and enter the combustion chamber, and for start-up without damaging the unit, in addition to the time required for checking and replacing parts. Three commenters (A-90-19: IV-D-32; IV-D-86; IV-D-97) stated that maintenance of a flare may require up to 7 to 10 days per year. One commenter (A-90-21: IV-D-17) indicated that rebricking a thermal oxidizer occurs approximately once every three years and requires at least one week. One commenter (A-90-21: IV-D-17) indicated that many States require an annual inspection of boilers, and this inspection itself requires more than 72 hours. One commenter (A-90-19: IV-D-89) stated that five days or more would be required to empty a large storage vessel for the purposes of routine maintenance due to limited tankage. One commenter (A-90-19: IV-D-113) indicated that, for certain chemicals such as styrene, there are special maintenance procedures that increase the time required to perform the maintenance. Three commenters (A-90-19: IV-D-32; IV-D-34) (A-90-21: IV-D-17) stated that 72 hours would be adequate for many typical procedures; for replacing a burned tip on a flare; for performing one maintenance incident for an incinerator; or for maintenance of simple equipment such as activated carbon beds. One commenter (A-90-19: IV-D-32) stated that the HON rule should provide an incentive for facilities to complete such maintenance procedures as quickly as practicable.

Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-34; IV-D-69; IV-D-73; IV-D-79; IV-D-86; IV-D-89; IV-D-92; IV-D-97; IV-D-112; IV-D-113) (A-90-21: IV-D-7; IV-D-17) suggested various ways to change the provisions to accommodate the need for additional maintenance time. Several commenters (A-90-19: IV-D-69; IV-D-86; IV-D-89; IV-D-97; IV-D-112; IV-D-113) (A-90-21: IV-D-7) suggested alternative limits for routine maintenance, including 10 days, 1 week, and 148 hours, with 10 days being the most common suggestion. One commenter (A-90-19: IV-D-34) noted that a limit of 10 days per year for maintenance has been incorporated by States into incinerator air permits.

Several commenters (A-90-19: IV-D-73; IV-D-89; IV-D-112) (A-90-21: IV-D-17) suggested allowing extensions for routine maintenance. Three of the commenters (A-90-19: IV-D-73; IV-D-112); (A-90-21: IV-D-17) recommended allowing the State or local permitting authority to grant extensions. One commenter (A-90-19: IV-D-89) stated that the HON should include provisions for extensions. Two commenters (A-90-19: IV-D-89) (A-90-21: IV-D-17) reasoned that allowing extensions would be consistent with other air regulations, such as NSPS, and current State agency practices which have proved effective at granting variances within a reasonable time frame.

Three commenters (A-90-19: IV-D-32; IV-D-97) (A-90-21: IV-D-17) suggested requiring that storage vessels not be filled during periods of routine maintenance that exceed the 72-hour limit. However, the commenters (A-90-19: IV-D-32; IV-D-97); (A-90-21: IV-D-17) stressed that sources should be allowed to maintain a constant liquid level in the tank or to lower the liquid level during this period.

One commenter (A-90-19: IV-D-33) suggested that the 72-hour limit be applicable only to times during routine maintenance when a storage vessel is being filled with organic HAP. The commenter (A-90-19: IV-D-33) provided an example calculation of breathing versus working losses indicating that if working losses were restricted, total emissions based on breathing losses would be very low. The commenter (A-90-19: IV-D-33) also indicated that if the EPA changed the 72-hour limit to apply only to periods during routine maintenance when a vessel is being filled with organic HAP, this 72-hour allowance should be applied to and tracked for each storage vessel separately in order to accommodate tank farms served by one control device.

Several commenters (A-90-19: IV-D-86; IV-D-92; IV-D-97) suggested that the 72-hour limit be replaced with a provision that specifies performing maintenance as required by the manufacturer of the control device. Two commenters (A-90-19: IV-D-73; IV-D-79) suggested that there be no limit for routine maintenance. One commenter (A-90-19: IV-D-34) suggested replacing the 72-hour limit with a specific limit for each type of control technology, such as 240 hours per year for incinerators.

Several commenters (A-90-19: IV-D-79; IV-D-86; IV-D-92; IV-D-97) (A-90-21: IV-D-7) interpreted the 72-hour limit to apply to all maintenance, including non-routine maintenance. Two commenters (A-90-19: IV-D-86; IV-D-97) suggested that the rule require documentation of all periods when equipment is not operating properly, rather than establishing a limit. One commenter (A-90-19: IV-D-79) suggested that the rule should include provisions for unforeseen circumstances, such as natural disasters, which would require control devices to be out of commission for repair for periods of time in excess of

72 hours. Three commenters (A-90-19: IV-D-86; IV-D-92; IV-D-97) were concerned that the 72-hour limit would require equipment to operate more than 99 percent of the time.

Response: The EPA wishes to clarify that "routine maintenance," as it is referred to in the storage provisions, refers to planned, routine maintenance of control devices, excluding unplanned repairs due to malfunction. Several commenters (A-90-19: IV-D-79; IV-D-86; IV-D-92; IV-D-97) (A-90-21: IV-D-7) interpreted the proposed 72-hour limit for routine maintenance to apply to non-routine maintenance such as malfunctions and repair due to natural disasters as well as to routine maintenance. The HON storage provisions include provisions in §63.119(e)(5) of subpart G for control system malfunction. These provisions specify that in the event of a closed-vent system or control device malfunction, the system is not required to meet the specifications in §63.119(e)(1) or (e)(2). This provision implies that control systems are not required to operate more than 99 percent of the time, as three commenters (A-90-19: IV-D-86; IV-D-92; IV-D-97) stated. The EPA has clarified the language in the rule by changing each reference to "routine maintenance" to "planned routine maintenance".

Regarding the issue of routine maintenance, the EPA has concluded that the proposed 72-hour allowance for routine maintenance is inadequate. After reevaluating the available information, the EPA determined that increasing the time allowance to 240 hours per year (i.e., 10 days per year) would be the most reasonable approach to address the need for more time to complete routine maintenance, and would be consistent with State air permitting activities. The EPA did not choose either of the other two approaches suggested by the commenters because of the additional burden associated with them. Specifically, requiring that storage vessels not be filled during any routine maintenance exceeding 72 hours would require the addition of equipment to monitor the liquid level for enforcement purposes. Further, allowing for extensions for routine maintenance beyond the 72 hours would require added reporting burden for both sources and implementing agencies.

While the EPA is allowing sources to utilize the full 240 hours to perform routine maintenance on each control device, the EPA dos not expect that sources will utilize all 240 hours for all control devices, because many types of control devices do not require this much maintenance time per year. The EPA has included provisions in the regulation that make sources accountable for their utilization of this allowance. Sources are required to periodically (i.e., every six months) report the routine maintenance performed during the previous six months, including the amount of time used to complete that routine maintenance, and the routine maintenance that is planned for the following six months.

Regarding the comment that it takes five days to empty a tank for routine maintenance, for any storage vessel that must be emptied before routine maintenance is performed (i.e., storage vessels for which there are no organic HAP vapor bypass capabilities), the owner or operator will not need any allowance for time to perform routine maintenance because there will be no additional emissions during the routine maintenance operation. The control device may be operating while the tank is being emptied and degassed, and once the storage vessel is emptied and degassed there will be no emissions from the storage vessel. Therefore, the length of time of the allowance for routine maintenance does not apply to those cases where a storage vessel is emptied and degassed for routine maintenance of the control device.

<u>Comment</u>: One commenter (A-90-19: IV-D-97) contended that the storage vessel provisions should clearly state that routine defrosting of refrigeration systems is not considered

part of the 72 hours of routine maintenance. The commenter (A-90-19: IV-D-97) explained that this routine operation is typically done during the morning hours for one hour, on a daily basis, and is not done during the maximum representative conditions.

Response: The EPA considers routine defrosting of refrigeration systems to be a process integral to the operation of a condenser unit rather than routine maintenance for a condenser unit. For those sources that choose to have a backup unit to operate while defrosting the main condenser unit, the defrosting cycle would not result in increased emissions. However, for those sources that do not choose to have a backup condenser unit, the refrigerated condenser unit must be designed to achieve a 95-percent reduction in total organic HAP emissions, including the time that the unit is undergoing the routine defrosting. A source is required to demonstrate any refrigeration system's 95-percent removal efficiency in either a design evaluation or a performance test.

3.4.3 Compliance Schedule

Comment: Three commenters (A-90-19: IV-D-32; IV-D-73; IV-D-97) expressed support for the proposed provision to allow an extension for upgrading seals for EFR's not meeting the required standard as specified in §63.119(c)(1). One commenter (A-90-19: IV-D-97) stated that because many process units are served by only a few tanks, any tank outage could shut down the process unit. The commenter (A-90-19: IV-D-97) indicated that allowing an extension for upgrading the seals could alleviate scheduling problems. One commenter (A-90-19: IV-D-97) stated that the environment would not be compromised by this delay. Another commenter (A-90-19: IV-D-32) explained that the emissions from emptying, cleaning, and degassing an EFR tank could exceed the emissions reduction achieved by the seal upgrade.

Four commenters (A-90-19: IV-D-32; IV-D-58; IV-D-64; IV-D-73) requested that the same extension allowed for EFR's also be allowed for IFR's that have a vapor mounted primary seal to retrofit a secondary seal or a liquid mounted primary seal. Two commenters (A-90-19: IV-D-32; IV-D-73) explained that a vapor mounted primary seal has been installed on many vessels to comply with NSPS in 40 CFR subparts K and Ka and State and local rules. The commenters (A-90-19: IV-D-32; IV-D-73) asserted that the incremental benefits and costs of making such an upgrade within 3 years of promulgation do not justify this requirement. One commenter (A-90-19: IV-D-73) maintained that if the EPA requires the seal upgrades within only 3 years, the number of storage vessels involved, the cost, and the disruption to plant operations and possibly delivery will be greater than estimated in the proposal BID. The other commenter (A-90-19: IV-D-32) maintained that, because the potential emission reduction from upgrading IFR seals is lower than the potential emission reduction from upgrading EFR seals (roughly 18 percent compared to 25 to 30 percent), it should be reasonable to allow a similar extension for both IFR vessels and EFR vessels.

Two commenters (A-90-19: IV-D-86; IV-D-97) stated that the same extension should be allowed for conversion of any tank to an IFR or EFR.

One commenter (A-90-19: IV-D-103) objected to the proposed extension of up to 10 years for upgrading seals on EFR's. The commenter (A-90-19: IV-D-103) explained that EFR vessels have higher emission rates compared to IFR vessels and that it is important that the seals on EFR's be upgraded as expeditiously as possible. The commenter (A-90-19: IV-D-103) suggested allowing a maximum extension of five years after promulgation for upgrading seals on EFR's.

Response: Storage vessels are routinely emptied and degassed on a 10-year cycle in order for the owner or operator to conduct inspections for corrosion, weld failures, and standard API operating practices; and to remove sludge. This 10-year cleaning and degassing schedule for performing storage vessel inspections is part of the floor level of control for storage vessels at existing sources. If the final rule were to require sources to upgrade the seal or fittings on an existing IFR with an existing vapor-mounted seal within the 3-year compliance period, sources would not likely be able to coordinate the activities of upgrading the seal or fittings and performing the standard 10-year inspection. As a result, sources would be required to clean and degas a storage vessel twice over a 10-year period, resulting in greater organic HAP emissions than the emission reductions that would then be achieved by the upgraded seals or fittings.

As stated above, the logistics of inspecting and servicing storage vessels according to the standard 10-year schedule are too complex to accommodate changes to the 10-year schedule. The final rule will be affecting very large tank farms, and each cleaning and degassing event will require that tank farms be taken out of service over a period of time, causing process unit shutdowns and affecting production cycles. Consequently, each additional cleaning and degassing would represent a significant burden and added costs to the SOCMI industry, which is already being required by the rule to control large storage vessels at a level above the floor.

For the reasons stated above, previous rulemakings have allowed delays for upgrading the seals on floating roofs of storage vessels at existing sources, with the intention of avoiding premature storage vessel cleaning and degassing. The EPA wishes to uphold this intent in the final rule. The EPA has concluded that the 10-year extension provided in the proposed rule for upgrading the seals of EFR's is also appropriate for IFR's that are equipped with a vapor-mounted primary seal and no secondary seal [see §63.119(b)(3)(iv) of subpart G of the final rule.]

Regarding the comment (A-90-19: IV-D-103) that the extension for upgrading seals on EFR's in the proposed §63.119(c)(1)(v) of subpart G should be reduced from ten years to five years, the EPA would like to clarify that, as explained above for IFR's, the 10-year extension was chosen because it is standard practice for sources to service storage vessels every 10 years. Requiring a shorter compliance period such as the suggested five years would result in additional HAP emissions from EFR storage vessels due to additional storage vessel emptying and degassings.

In the final rule, a 10-year extension is allowed only for EFR storage vessels that are already equipped with one of the following three seal configurations: (1) a vapor-mounted primary seal and secondary seal; (2) a liquid-mounted primary seal; or (3) a metallic shoe primary seal [see §63.119(c)(1)(iv) and (c)(1)(v) of subpart G of the final rule]. An extension is not allowed for EFR storage vessels equipped only with a vapor-mounted primary seal and no secondary seal. In order to ensure that a single liquid-mounted or metallic shoe primary seal and no secondary seal is effectively reducing HAP emissions, the EPA is requiring in the final rule that seal gap measurements of the primary seal be performed at least once per year, rather than once every five years.

<u>Comment</u>: Three commenters (A-90-19: IV-D-58; IV-D-64; IV-D-73) stated that an extension should also be allowed for the upgrading of IFR fittings, since controls cannot be installed until the vessel has been emptied and degassed. One commenter (A-90-19: IV-D-58) specifically requested an extension for equipping sample wells with slit fabric covers. The commenter (A-90-19: IV-D-58) noted that, although controlled fittings are currently required in 40 CFR part 60

subpart Kb, subpart Kb only applies to new tanks. One commenter (A-90-19: IV-D-73) stressed that it would be environmentally and economically counterproductive to require existing vessels equipped with IFR's in good condition to be removed from service, cleaned, and degassed just to change a deck fitting such as a sample or gauging well or seal mechanism within the 3-year compliance period. The commenter (A-90-19: IV-D-73) argued that it would be more environmentally beneficial for available resources to be used to install floating roofs where they do not currently exist rather than to gain a small emission reduction by upgrading seals and fittings.

One commenter (A-90-19: IV-D-73) requested that the EPA revise the proposed requirement for providing projections below the liquid level for openings on noncontact EFR's. The commenter (A-90-19: IV-D-73) explained that the incremental benefit of complying with this requirement for existing storage vessels is not justified because the vessels must first be removed from service and degassed. The commenter (A-90-19: IV-D-73) suggested that the proposed provision apply only to new or replacement EFR's or that an extension be allowed for existing storage vessels until the next time the vessel is out of service, or ten years after promulgation, whichever is earlier.

<u>Response</u>: The EPA agrees with the commenters (A-90-19: IV-D-58; IV-D-64; IV-D-73) that, if an extension is allowed for upgrading seals on IFR's, then the same extension should be allowed for upgrading the fittings for the IFR's, because many of the fitting upgrades will require that the storage vessels be emptied and degassed. The EPA also agrees that an extension should be allowed for providing projections below the liquid level for openings on noncontact EFR's. As described above for extending the compliance schedule for upgrading certain seal configurations on IFR's, the EPA

determined that it would be unreasonable to require a cleaning and degassing within 3 years of promulgation solely for the purpose of upgrading the fittings on an IFR or for providing projections below the liquid level for non-contact EFR's, because such requirements would result in additional organic HAP emissions and additional costs. The EPA added language to the storage provisions in §§63.119(c)(5)(viii) and 63.119(c)(2)(xii) of subpart G to allow these extensions.

3.4.4 Inspections and Delay of Repair

Comment: One commenter (A-90-19: IV-D-73) expressed support for the delay-of-repair provisions in proposed §63.120(f)(2)(iii) of subpart G for storage vessel closed-vent systems. The commenter (A-90-19: IV-D-73) explained that most closed-vent systems cannot be repaired within 15 days because most of them serve multiple emission points and process equipment which must first be shut down. One commenter (A-90-19: IV-D-78) implied that clarification was needed regarding the actions that must be taken if a closed-vent system has detectable emissions greater than 500 ppmv. The commenter (A-90-19: IV-D-78) suggested that the storage vessel provisions appear to imply that if repair of such a closed-vent system is not completed within 15 calendar days, then the storage vessel must be emptied and degassed. The commenter (A-90-19: IV-D-78) suggested that in cases where a closed-vent system is found to have emissions greater than 500 ppmv, a delay of repair should be granted, upon reasonable request, during which time a facility can continue storage and use of tank contents, as long as no additional filling activities occur. The commenter (A-90-19: IV-D-78) explained that the greatest emissions occur during filling. The commenter (A-90-19: IV-D-78) stated that if the EPA does not allow such a delay and the storage vessel must be emptied, the result would be an excessive burden for facilities and possibly overall greater emissions.

Response: The EPA would like to clarify that, in the proposed provisions, delay of repair is allowed if one of the following is true: (1) repair would be technically infeasible without a process unit shutdown; or (2) emissions of purged material resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. According to the proposed provisions, if one of those two criteria were met, then repair could be delayed, upon request, until the end of the next process unit shutdown. If a source does not meet one of these criteria, the source will not get a delay for repair of the closed-vent system. For these sources, the EPA does not consider the cost of temporary alternate storage capacity to be unreasonable if repair of the closed-vent system cannot be completed within 15 days.

The delay of repair provisions have been moved to a new section (§63.148) of subpart G of the rule, which includes all provisions concerning closed-vent systems that were previously located in the storage provisions.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-113) expressed support for the proposed provisions which would allow two 30-day extensions to repair equipment failures that are discovered during annual inspection of an IFR or 5-year inspection of an EFR. One commenter (A-90-19: IV-D-32) gave examples of circumstances that could prevent facilities from being able to complete repairs during the initial 45 days: (1) lack of alternate storage capacity and (2) safety considerations such as tank shell corrosion restricting safe access to the tank roof and exposure of repair personnel to harmful vapors.

Two commenters (A-90-19: IV-D-92) (A-90-21: IV-D-1) requested that the overall period for repair of floating roofs be lengthened from 45 days plus two 30-day extensions to a period of 90 days plus two 45-day extensions. One commenter (A-90-21: IV-D-1) explained that the longer repair period would ensure that facilities could do repairs during the common down periods, Christmas and July 4th holidays. One commenter (A-90-19: IV-D-92) explained that tank seals typically cannot be obtained within 45 days from the suppliers and there are storage/degradation problems if spares are stored on site. The commenter (A-90-19: IV-D-92) added that it would be very difficult to empty tanks because SOCMI facilities do not have spare tankage.

Response: The EPA established the schedule of a maximum of 90 days for completing repairs of floating roofs based on a reasonable estimate of the time sources would require to order and install needed parts. This same schedule for repair is included in the National Emission Standard for Benzene Emissions from Benzene Storage Vessels (54 FR 38077, September 14, 1989) in subpart Y of 40 CFR part 61 and the Standards of Performance for Volatile Organic Liquid Storage Vessels (52 FR 11429, April 8, 1987) in subpart Kb of 40 CFR part 60. Based on discussions with vendors of IFR vessels, parts for floating roofs are readily available and can be ordered and received within two weeks. The EPA understands that certain types of seals (i.e., liquid-mounted seals) are bulky and require too much space for storage on-site. However, since the lead time for ordering and receiving parts is relatively short, it is not necessary for sources to store these parts on-site. For these reasons and because the EPA received support for the proposed repair schedule, the EPA has retained the proposed repair schedule in the promulgated standard.

Comment: One commenter (A-90-21: IV-D-1) urged the EPA to reconsider the storage vessel provisions in proposed §63.120(a)(7) requiring needed repairs discovered during internal 10-year inspections of an IFR to be completed before refilling of the storage vessel. The commenter (A-90-21: IV-D-1) contended that the storage vessel provisions should allow refilling prior to repair with repairs to be completed at a later date. The commenter (A-90-21: IV-D-1) explained that, if spare parts were not readily available, loss of storage capacity could inhibit plant operation. The commenter (A-90-21: IV-D-1) suggested that, if a repair could not be made before refilling a vessel, the operator be required to provide notice to the Administrator of the reasons the repair could not be achieved prior to refilling and that the operator then have six months to complete repair. The commenter (A-90-21: IV-D-1) added that a six-month extension would allow repairs to be conducted during common down times.

Response: As stated in a previous response in this section, the EPA has concluded that spare parts for floating roofs are readily available, and may be ordered and obtained within two weeks. If this short-term loss of storage capacity would inhibit plant operation, a facility may choose to rent additional tankage in the interim. However, the EPA does not anticipate this schedule to be a problem. This same schedule for repair is included in the National Emission Standard for Benzene Emissions from Benzene Storage Vessels (54 FR 38077, September 14, 1989) in subpart Y of 40 CFR part 61 and the Standards of Performance for Volatile Organic Liquid Storage Vessels (52 FR 11429, April 8, 1987) in subpart Kb of 40 CFR part 60. Additionally, the EPA would consider it unreasonable for a source to empty and degas a storage vessel for its 10-year internal inspection, to refill the vessel without completing repairs, and then to empty and degas the vessel a second time within six months to complete the repair. This additional degassing would be costly and would result in additional HAP emissions. For these reasons, the EPA is retaining the repair schedule specified in proposed §63.120(a)(7) for floating roofs.

Comment: One commenter (A-90-19: IV-D-62) recommended that internal inspections requiring emptying and degassing of

IFR vessels be required only once every 20 years, rather than every 10 years. The commenter (A-90-19: IV-D-62) explained that these internal inspections can be costly and dangerous, and can result in additional emissions of criteria pollutants and HAP's from the degassed vessel. The commenter (A-90-19: IV-D-62) added that additional tankage may have to be built to make up for lost capacity. The commenter (A-90-19: IV-D-62) also claimed that the cost to prepare a single storage vessel can be as high as several hundred thousand dollars.

The commenter (A-90-19: IV-D-62) explained that a 20-year inspection schedule is part of an industry-recommended practice, included in American Petroleum Institute (API) Bulletin 653, which requires that storage vessels undergo internal inspections every 10 years, unless it can be demonstrated that there are no corrosion problems, in which case inspections take place every 20 years. The commenter (A-90-19: IV-D-62) suggested that coordination of such corrosivity inspections with the seal inspections of the HON would provide an incentive for facilities to adopt improved storage vessel management practices and would reduce the cost of compliance.

Response: The EPA determined that storage vessels are typically emptied, degassed, and cleaned every 5 to 10 years, and that the 10-year internal inspection requirement is not an undue burden. The EPA determined that, in many cases, alternate tankage will be available. Otherwise, additional tankage may be rented. The EPA concluded that the suggested 20-year inspection schedule for vessels where the source has demonstrated that there are no corrosivity problems would not be an acceptable substitute for internal inspections, which ensure that the floating deck and seals are operating properly.

Comment: Two commenters (A-90-19: IV-D-64; IV-D-73) stated that the applicability for an exemption from inspecting difficult-to-inspect closed-vent systems should be based on the status of the entire closed-vent system, not on the status of the storage vessel, as in proposed §63.120(f)(4)(ii). One commenter (A-90-19: IV-D-73) explained that it is the closed-vent system and not the storage vessel to which these proposed provisions would apply. One commenter (A-90-19: IV-D-64) referred to the exemption as a "temporary" exemption from performing annual leak inspections.

One commenter (A-90-19: IV-D-73) suggested that this exemption should apply to new closed-vent systems as well as existing closed-vent systems. The commenter (A-90-19: IV-D-73) explained that certain components will continue to be located in difficult-to-inspect locations on new closed-vent systems because these design locations serve a purpose. The commenter (A-90-19: IV-D-73) offered as an example that high point bleeds, which are used for placing a piping system in service or taking it out of service, are frequently difficult to inspect, and this type of component, by definition, must be located at the high point in the piping system, whether it is a new or existing system. The commenter (A-90-19: IV-D-73) further explained that the only way to make such a component accessible, in some cases, is to build a very large platform or scaffold. The commenter (A-90-19: IV-D-73) contended that there would be little environmental benefit from requiring monitoring of these small components. The commenter (A-90-19: IV-D-73) suggested that paragraph (f)(4)(ii) of proposed §63.120 be deleted from the storage vessel provisions.

Response: The EPA agrees with the commenter (A-90-19: IV-D-73) that there are some types of equipment associated with closed-vent systems that will be difficult to inspect even in new sources. The EPA will therefore apply the difficult-to-inspect provisions for existing sources in the proposed §63.120(f)(4) to storage vessels at new sources as well. The EPA has omitted the provisions that limited this exemption only to storage vessels at existing sources. Furthermore, in the final rule, the EPA has moved the Method 21 leak inspection provisions for closed-vent systems associated with storage vessels from the storage provisions (i.e., §§63.119 through 63.123) to a new §63.148 of subpart G. This new section includes the Method 21 leak inspection provisions for closed-vent systems associated with the transfer and wastewater provisions as well the storage vessel provisions. The provisions for difficult- and unsafe-to-inspect parts are included in the new §63.148 provisions for emission points at both new and existing sources.

The EPA wishes to clarify for the commenter (A-90-19: IV-D-64) that the exemption for difficult-to-inspect parts is not a "temporary" exemption. The exemption is associated with a requirement to perform a less frequent inspection of the closed-vent system.

Comment: One commenter (A-90-19: IV-D-32) expressed support for the provisions in §63.120(b)(7) of the proposed HON allowing an extension of the inspection period when an owner or operator determines that it is unsafe to perform the seal gap measurements required under §63.120(b) for EFR vessels.

Response: The EPA agrees and appreciates this support.

Comment: One vendor (A-90-19: IV-D-8) provided information to the EPA on a leak detection device to be used instead of Method 21 for compliance with the inspection provisions for closed-vent systems. Others (A-90-19: IV-D-14; IV-D-15; IV-D-17; IV-D-18; IV-D-19; IV-D-20; IV-D-23; IV-D-24; IV-D-25; IV-D-27; IV-D-28), (A-90-20: IV-D-2; IV-D-4) commented on procedures and requirements of Method 21.

Response: The EPA has provided a discussion on Method 21 and this alternate leak detection device in section 5.0 of this BID volume.

Comment: Three commenters (A-90-19: IV-D-32; IV-D-33; IV-D-73) contended that the storage vessel provisions should not include inspection requirements for closed-vent systems. The commenters (A-90-19: IV-D-32; IV-D-73) suggested that, instead, only the requirements of subpart H should apply. The commenters (A-90-19: IV-D-32; IV-D-73) added that, in order to reduce confusion, the EPA should delete from the storage provisions the references to closed-vent systems having no detectable emissions. One commenter (A-90-19: IV-D-73) suggested that the storage provisions state explicitly the applicability of §§63.171 and 63.172 of subpart H for monitoring all components of closed-vent systems for detectable emissions.

One commenter (A-90-19: IV-D-73) explained that in many SOCMI plants, there is one plant-wide closed-vent system and that it is essential that the entire system be subject to only one regulatory requirement.

The commenter (A-90-19: IV-D-73) also noted a difference between the inspection provisions for systems serving storage vessels (subpart G) and those serving process equipment (subpart H). The commenter (A-90-19: IV-D-73) stated that §63.160(a) of the proposed subpart H sets a concentration threshold of applicability for §63.172, whereas there is no concentration threshold of applicability for inspecting closed-vent systems under the proposed storage vessel provisions. The commenter (A-90-19: IV-D-73) expressed concern that for a single closed-vent system that serves both storage vessels and process production equipment subject to the equipment leak provisions, the closed-vent system that does not meet the concentration threshold for the equipment leak provision would be subject to inspection under the storage vessel provisions.

One commenter (A-90-19: IV-D-32) questioned why closed-vent systems for storage vessels were treated as different from other types of equipment subject to subpart H and asserted that there was no reason why closed-vent systems on storage vessels should have a separate requirement.

Response: The EPA reviewed the option of consolidating all fugitive emission testing in subpart H. However, due to the structure of subpart H and to the different compliance schedules for subparts G and H, incorporating the leak inspection requirements from subpart G into subpart H would have generated additional confusion in the regulated community. The EPA agrees that the leak inspection requirements which were located in separate sections for each emission point in subpart G should be condensed into a single section. Therefore, in the final rule, the EPA incorporated all leak inspection provisions for subpart G into a new section (§63.148) of subpart G.

Comment: One commenter (A-90-19: IV-D-73) pointed out that, although the storage provisions in proposed §63.120(f)(5) of subpart G indicate that any part of a closed-vent system subject to subpart H is not subject to subpart G, this override provision should also be included in §63.119(e)(1), which specifies the Method 21 monitoring requirement.

Response: As summarized above, the proposed requirements in §63.120(f) of subpart G for closed-vent systems serving storage vessels were moved to a new section (§63.148) of subpart G. The new provisions in §63.148 have incorporated the override provision that any part of a closed-vent system subject to subpart H is not subject to §63.148 of subpart G.

3.5 RECORDKEEPING AND REPORTING

Comment: Three commenters (A-90-19: IV-D-33; IV-D-64; IV-D-73) contended that the notification requirements for refilling a vessel after an inspection and for performing a seal gap measurement were unnecessarily burdensome and should be omitted from the storage vessel provisions. One commenter

(A-90-19: IV-D-32) made the same comment concerning only the notification requirement for seal gap measurements. Two commenters (A-90-19: IV-D-33; IV-D-73) reasoned that these two notification requirements would precipitate many notifications that would seldom be followed up with a regulatory agency observer being present. One commenter (A-90-19: IV-D-32) contended that, specifically for seal gap measurements, it is highly unlikely that a regulatory agency will have the resources to provide an observer for these measurements. One commenter (A-90-19: IV-D-73) claimed that the two notification requirements would merely create an opportunity for a finding of noncompliance against sources.

Two commenters (A-90-19: IV-D-64; IV-D-73) maintained that regulatory agencies can request to be notified on a case-by-case basis. One commenter (A-90-19: IV-D-64) suggested that the HON should allow sources to proceed with the planned inspections or measurements unless the regulatory agency has asked to be notified. The commenter (A-90-19: IV-D-64) remarked that such a provision would protect regulatory agencies' inspection authority and preserve sources' operating flexibility. Two commenters (A-90-19: IV-D-32; IV-D-33) suggested that the notification requirements be replaced with a requirement that the timing and results of the inspections (A-90-19: IV-D-33) and measurements (A-90-19: IV-D-32; IV-D-33) be included in the next periodic report. One commenter (A-90-19: IV-D-32) added that facilities could be required to keep a record on-site of when seal gap measurements are performed.

Response: The EPA has determined that the notification requirements for an owner or operator to inform the implementing agency of an upcoming seal gap measurement (for EFR vessels) and of vessel refilling when a vessel has been emptied and degassed (for both IFR vessels and EFR vessels) is a reasonable requirement that is not unnecessarily burdensome, as stated by three commenters (A-90-19: IV-D-33; IV-D-64; IV-D-73). These notifications are not required to be submitted very frequently. For IFR vessels, which are the most common type of floating roof vessel used by the SOCMI, the notification requirement for vessel refilling will be required once per ten years, or each time the vessel is emptied and degassed. For EFR vessels, the notification requirement for vessel refilling has no specified schedule, as the notification is required each time this type of vessel is emptied and degassed, according to the schedule established by the facility operating the vessel. The EPA anticipates that EFR vessels will be emptied and degassed no more frequently than once every ten years. Also for EFR vessels, the notification requirement for seal gap measurements will be required once per year. The EPA maintains that this notification requirement is not unnecessarily burdensome, and that these notifications are necessary for effective enforcement of the rule.

The EPA also concluded that these notification requirements are not likely to result in findings of noncompliance against sources, as stated by one commenter (A-90-19: IV-D-73). If a source cannot notify the implementing agency within 30 days due to an unplanned event, a source is not necessarily in noncompliance. Both of these notification provisions specify that if the seal gap measurement or internal inspection associated with the vessel refilling were unplanned, then the notification could be made seven days in advance of the measurement or refilling, rather than the standard 30 days in advance.

The EPA has also concluded that, based on discussions with State agencies, these notifications will result, in many cases, in observers being sent to facilities to be present during the measurement or inspection. The EPA recognizes that some implementing agencies may choose to send observers to these measurements and inspections less frequently than other implementing agencies; however, the EPA anticipates that the majority of implementing agencies will use these notifications for enforcement purposes.

<u>Comment</u>: Two commenters (A-90-19: IV-D-34) (A-90-21: IV-D-17) contended that the EPA revise the notification requirement of a minimum of seven days prior to refilling for unplanned storage vessel inspections in proposed §63.120(a)(6) and (b)(10)(iii) to allow for more flexibility. The commenters (A-90-19: IV-D-34) (A-90-21: IV-D-17) explained that tanks can be emptied, cleaned, repaired or inspected, and filled in fewer than seven days, and for these tanks, the seven-day wait would require that the vessel remain out of service longer than necessary. One commenter (A-90-19: IV-D-34) claimed that good safety practices require that a storage vessel be returned to service as quickly as possible because when a tank is removed from service, special arrangements must be made for the continued operation of the production unit and for the distribution of the product. The commenter (A-90-19: IV-D-34) explained that, during these periods of time, routine operations are modified and mistakes are more likely to occur. One commenter (A-90-21: IV-D-17) claimed that if a vessel could be inspected and operational in less than seven days, a source would not want to extend the down time and costs because of the seven-day wait period, and would therefore have an incentive to forego the inspection.

One commenter (A-90-19: IV-D-34) suggested replacing the seven-day notification period prior to refilling with a notification of the unplanned inspection when the tank goes out of service, which would include the expected inspection and refilling dates. One commenter (A-90-21: IV-D-17) suggested adding language that would allow the Administrator to authorize refilling in less than seven days or allow the source to forego the delay if the delay would cause substantial economic loss. The commenter (A-90-21: IV-D-17) offered regulatory language that would specify a notification requirement for requesting a shorter time for refilling and explaining why this shorter time was required.

Response: The EPA has concluded that the requirement for a seven-day advance notification of refilling of a storage vessel for which an inspection was unplanned will not cause sources to extend the downtime of their storage vessels. First, the EPA has determined that it will be unusual for owners or operators to choose to complete the process of emptying, degassing, cleaning, and inspecting a vessel in less than seven days. Second, the storage provisions do not preclude an implementing agency from negotiating with the owner or operator to allow a vessel to be refilled earlier than the seven days, if there is good reason to do so. Finally, the EPA would like to point out that a seven-day time period is the minimum time that could be specified in order for enforcement personnel to arrange to observe the inspection.

Comment: Three commenters (A-90-19: IV-D-86; IV-D-92; IV-D-97) contended that the requirement for sources to submit detailed descriptions of upcoming and past routine maintenance for storage vessels is unnecessary and burdensome. The commenters (A-90-19: IV-D-86; IV-D-92; IV-D-97) stated that the proposed storage provisions already include requirements limiting routine maintenance to a specified number of hours per year and requiring reporting of the total time that routine maintenance was actually performed. Two commenters (A-90-19: IV-D-86; IV-D-97) noted that detailed maintenance plans are not required for other emission points regulated by the HON.

Response: The EPA has included the requirement for owners or operators of storage vessels to submit detailed descriptions of past and upcoming routine maintenance for the storage vessels because of the requirement in the storage provisions that limits the total number of hours that a control device may be inoperable due to planned, routine maintenance. These detailed descriptions of routine maintenance are needed for enforcement purposes in order for a facility inspector to verify what is and what is not routine maintenance, in the case that an inspection of a facility coincides with downtime for a control device. Furthermore, this reporting requirement provides the source with some flexibility to establish a site-specific definition of what maintenance activities are considered routine maintenance. Therefore, the EPA has concluded that this reporting requirement is necessary for enforcement purposes and provides flexibility to facilities, rather than being unnecessary and burdensome, as stated by the three commenters (A-90-19: IV-D-86; IV-D-92; IV-D-97.)

Comment: Two commenters (A-90-19: IV-D-73) (A-90-21: IV-D-17) contended that the 30-day notification requirement in proposed §63.120(f)(2)(iii)(A) for delay of repair of a closed-vent system is unnecessary and inconsistent with the proposed equipment leaks provisions in §§63.171 and 63.182(b) of the proposed subpart H. One commenter (A-90-19: IV-D-73) recommended that the provision be deleted. The other commenter (A-90-21: IV-D-17) encouraged the EPA to revise the notification requirement by allowing the source to include the necessary information in the semi-annual report, as required in the proposed subpart H for delay of repair of various equipment leak components.

Response: The EPA agrees with the two commenters (A-90-19: IV-D-73) (A-90-21: IV-D-17) that the 30-day notification requirement in the proposed §63.120(f)(2)(iii)(A) for delay of repair of a closed-vent system is unnecessary and inconsistent with the proposed subpart H. The storage vessel provisions allow a source to delay repair of a closed-vent system if the repair would require a process unit shutdown, or if the emissions of purged material resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Because the criteria for eligibility to delay repair are clearly specified in the rule, the EPA concluded that it is not important that the implementing agency review a facility's rationale during the delay of repair. The EPA has revised these provisions for closed-vent systems such that, if a source chooses to delay repair of a closed-vent system for one of these two reasons, the source's rationale for this decision may be included in the periodic report, rather than in a separate notification requirement.

Furthermore, the Method 21 inspection provisions for closed-vent systems that were included in the storage vessel provisions have been moved from the storage vessel provisions of the promulgated rule to the new §63.148 of subpart G. See section 3.4.4 of this BID volume for further discussion of this move. This new §63.148 requires a source to include the specified information concerning the repair extension in the same periodic reports required by the equipment leaks provisions in subpart H.

Comment: One commenter (A-90-19: IV-D-33) requested that the EPA clarify the wording in proposed §63.120(a)(4), (b)(7)(ii), and (b)(8) of subpart G which specifies how sources may request up to two extensions of up to 30 additional days each for repairing floating roof failures discovered during inspections or seal gap measurements. The commenter (A-90-19: IV-D-33) pointed out that the provisions do not specify an approval deadline by the Agency, what criteria the Agency will use to review the request, whether or not the Agency will provide a written response to the request, or whether the source can proceed under the requested extension without an approval notification. The commenter

(A-90-19: IV-D-33) stated that without these details clarifying the responsibilities of both the regulated facility and the regulatory authority, the source is uncertain as to the amount of time available to complete repairs. The commenter (A-90-19: IV-D-33) recommended adding language to §63.122(h)(3) to specify that the source will automatically receive the requested extension unless the Administrator denies the extension within 15 days of receiving the request.

Response: In considering the comment, the EPA determined that the requirements specified in proposed §§63.120(a)(4), (b)(7)(ii), and (b)(8) of the proposed storage vessel provisions, requiring sources to request up to two 30-day extensions for repair of floating roofs, create an excessive burden for the implementing agency. The EPA does not expect that implementing agencies will have the resources to review and approve these requests before the requested time has elapsed, i.e., 30 days. The EPA concluded that sources that use up to two 30-day extensions will be required to report the decision to use each 30-day extension in the next periodic report. This report shall include the same information that was required, in the proposed storage provisions, to be included in the request for the extension: (1) a description of the failure; (2) documentation that alternate storage capacity is unavailable; and (3) a schedule of actions that the source will take in order to repair the control equipment or empty the storage vessel as soon as possible within the 30-day extension period.

3.6 WORDING OF THE PROVISIONS

Comment: Two commenters (A-90-19: IV-D-64) (A-90-21: IV-D-17) stated that the wording of §63.120(f)(1), describing the proposed frequency of inspecting closed-vent systems for leaks, is ambiguous. The commenters (A-90-19: IV-D-64) (A-90-21: IV-D-17) explained that the wording could be misinterpreted to mean that inspections must be done during all filling operations or just during initial filling, in addition to once per year when the storage vessel is not being filled. One commenter (A-90-19: IV-D-64) suggested excluding the wording "during filling of the vessel." The other commenter (A-90-21: IV-D-17) suggested revising the language of §63.120(f)(1) to read: "Inspections of the closed-vent system shall be done at least once per year while the vessel is being filled."

Response: The EPA would like to clarify that the phrase "during filling" was not intended to mean that inspection was required each time a vessel was filled. Rather, it was intended to require inspection during worst case conditions. While a tank is being filled, the flow rate and pressure of the emission stream are at their highest. Thus, a failure in the closed-vent system will be more easily detected. However, because the proposed language was confusing to some commenters, the EPA concluded that the wording of proposed §63.120(f)(1) should be modified to more clearly reflect the EPA's intended meaning. The requirement is in §63.120(d)(6) of the final rule, and the revised language is: "The initial and annual inspections...shall be done during filling of the storage vessel."

Comment: One commenter (A-90-19: IV-D-64) suggested that the language in proposed §63.122(d) which describes the reporting requirements for inspections of IFR vessels is unclear. The commenter (A-90-19: IV-D-64) explained that the proposed language could be interpreted as requiring the reporting of inspection results for all storage vessels inspected, including storage vessels with no detected failures, in the event that a single storage vessel failed its inspection. The commenter (A-90-19: IV-D-64) suggested alternative wording.

Response: The EPA reviewed the language in proposed §63.122(d) and concluded that the wording in the paragraph does not imply that all inspected storage vessels at a source, regardless of defects, would require reporting. The EPA determined that the language in §63.122(d) clearly refers to a single inspection rather than to a group of inspections (i.e., the whole event of inspecting all storage vessels with the given control equipment). In proposed §63.122(d), the regulation refers to "each inspection conducted in accordance with §63.120(a)," and proposed §63.120(a) refers to only a single storage vessel and never to a group of storage vessels. Therefore, the wording of proposed §63.122(d) will remain the same in the final rule.

Comment: One commenter (A-90-19: IV-D-34) stated that the recordkeeping requirement in proposed §63.123(a) that records be maintained of each Group 1 and Group 2 storage vessel's dimensions and of an analysis showing its capacity, as long as the vessel is in service, needs to be reworded to clarify that these records must be maintained only if the vessel is in organic HAP service. The commenter (A-90-19: IV-D-34) explained that the service of a storage vessel may change several times over its lifetime, depending on the needs of the facility.

Response: The EPA agrees that the language in §63.123(a) should be clarified as suggested by the commenter (A-90-19: IV-D-34). The EPA changed the wording to read: "This record shall be kept as long as the storage vessel retains Group 1 or Group 2 status and is in operation." A storage vessel that retains Group 1 or Group 2 status is a storage vessel that is covered by the HON and, thus, is in organic HAP service. If a storage vessel discontinues organic HAP service, it no longer retains Group 1 or Group 2 status.

Comment: One commenter (A-90-19: IV-D-87) reported that proposed §63.120(b)(3) of subpart G has a typographical error in that 212 square inches should be replaced with 21.2 square inches.

Response: It is not clear to the EPA why the commenter is suggesting that there is a typographical error in §63.120(b)(3). Because the commenter is suggesting that the accumulated area of gaps per meter of vessel diameter for the primary seal be changed to 21.2, which is the maximum allowed area for the secondary seal in §63.120(b)(4), the EPA has interpreted that the commenter assumed the requirements for primary and secondary seals to be the same. The EPA would also like to point out that the commenter's suggested change should have been presented as 21.2 square centimeters rather than square inches. The EPA wishes to clarify for the commenter that the seal gap requirements are different for primary and secondary seals. For the primary seal, the storage provisions specify an allowance of up to 212 square centimeters of accumulated area of gaps per meter of vessel diameter. For the secondary seal, the storage provisions specify a more stringent allowance of up to 21.2 square centimeters of accumulated area of gaps per meter of vessel diameter. The requirement for a secondary seal is more stringent than that for a primary seal because a secondary seal is exposed directly to the atmosphere. A gap in the secondary seal has a greater potential to cause organic HAP emissions than does the primary seal because the primary seal in a two-seal system is protected from wind effects by the presence of the secondary seal. These requirements are the same requirements specified in 40 CFR part 60 subpart Kb, the NSPS for Volatile Organic Liquid Storage Vessels, and in 40 CFR part 61 subpart Y, the NESHAP for Benzene Emissions from Benzene Storage Vessels.

3.7 MISCELLANEOUS

Comment: One commenter (A-90-19: IV-D-92) requested clarification of the meaning of the term "impurity", as used in the storage vessel provisions.

Response: The EPA agrees with the commenter (A-90-19: IV-D-92) and has revised the definition of the term "impurity". The revised definition in §63.101 of subpart F reads as follows: "a substance that is produced coincidentally with the primary product, or is present in a raw material. An impurity does not serve a useful purpose in the production or use of the primary product and is not isolated."

Comment: One commenter (A-90-19: IV-D-92) requested further clarification of the definition of the term "product", as used in the storage vessel provisions. The commenter (A-90-19: IV-D-92) explained that it is difficult to identify the "product" for mixed streams, such as gasoline.

Response: The EPA would like to clarify for the commenter (A-90-19: IV-D-92) that the term "product", as used in the storage provisions of the rule, refers to the material stored in the storage vessel. For mixed streams, such as gasoline, identifying the "product" is the same as identifying the mixed streams included in the gasoline.

Comment: One commenter (A-90-19: IV-D-92) stated that it is important that the HON be consistent with other regulations and asked if the HON is consistent with 40 CFR 112, The Oil Pollution Act.

Response: Although the HON and the Oil Pollution Prevention regulation (40 CFR 112) have different objectives and are unlikely to regulate the same facilities or pollutants, their provisions are not inconsistent. The Oil Pollution Prevention regulation is written to prevent oil discharges into or on navigable waters from facilities engaging in all aspects of acquiring and selling oil and oil products, including storage. The Oil Pollution Prevention regulation (1) requires that a spill prevention control and countermeasure plan be written and implemented; and (2) provides applicable guidelines for prevention of leaks, such as adequate design, secondary containment, liquid level sensors, and periodic inspections and tests. The HON requirements are designed to limit emissions of HAP vapor from storage vessels, rather than to prevent leaks and spills; however, none of the HON provisions preclude spill plans, secondary containment, inspections, etc., required or suggested in 40 CFR 112. Therefore, a facility could comply with both regulations.

4.0 TRANSFER OPERATIONS

4.1 APPLICABILITY AND GROUP 1/GROUP 2 DETERMINATION

Comment: Two commenters (A-90-19: IV-D-32; IV-D-112) concurred that the EPA had appropriately defined RCT for transfer operations. Two commenters (A-90-19: IV-D-58; IV-D-62) supported the EPA's decision to propose the floor level of control as MACT for transfer operations. The commenters (A-90-19: IV-D-58; IV-D-62) stated that the increased cost of controlling all racks is not justified given the very small emissions reductions. One commenter (A-90-19: IV-D-92) stated that the HON transfer operations provisions appear to be consistent with other NESHAP's.

Response: The EPA appreciates the commenters support.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-112) supported vapor balancing being included in the HON as an option for emissions averaging. The commenters (A-90-19: IV-D-32; IV-D-112) also supported the exclusion of racks using vapor balancing from the transfer operation provisions.

Response: The EPA appreciates the commenters support.

Comment: One commenter (A-90-19: IV-D-85) maintained that in order to escape the conclusion that the floor levels require control, the EPA divided the transfer racks into two groups, those with average vapor pressures above or below 1.5 psia.

Response: It is not practical or cost effective to control all emission points at a facility. Emissions from some points are very small. The cost to control these emissions is relatively large, and the quantity of emissions reduced does not warrant the cost of controlling them. This is a fact recognized by State environmental agencies and evident in applicability criteria found in existing regulations. In the case of transfer operations, the current regulations generally define applicability based on vapor pressure and throughput. These two factors have the greatest effect on the magnitude of emissions from transfer operations. Most State regulations require control of transfer operations only at liquid vapor pressures above 1.5 psia. Therefore, for the HON analysis, it was a natural division of data; racks transferring chemicals with a vapor pressure less than 1.5 psia have low emissions and are not controlled; racks transferring chemicals with a vapor pressure greater than 1.5 psia have larger emissions and, therefore, require control.

Comment: One commenter (A-90-19: IV-D-85) asserted that the EPA's determination of the floor for new sources is inconsistent with the data presented in a memorandum in the docket. The commenter (A-90-19: IV-D-85) contended that the memorandum shows that racks with vapor pressures less than 1.5 psia are sometimes controlled and the best-controlled rack from a volume standpoint is controlled with a throughput of 160,000 gallons/yr.

Response: The commenter is correct in noting that attachment 2 of the docket memorandum "Analysis of Hazardous Organic NESHAP (HON) Database to Determine the Floors," (Docket item A-90-19: II-B-277) indicates that two racks identified during floor determination with average rack weighted vapor pressure less than 1.5 psia are controlled. However, the information for these two racks is not an accurate representation of what actually occurs at SOCMI facilities, but is an artifact of the data assumptions used in the analysis. These racks were assigned control because there are some chemicals loaded at the racks that have a vapor pressure greater than 1.5 psia, and, therefore, are required by State regulators to be controlled. In reality, transfers of the chemicals with a vapor pressure below 1.5 psia would not be controlled but transfer of the chemicals with a vapor pressure above 1.5 psia would be.

The commenter is also correct in noting that the lowest throughput for controlled racks with vapor pressures greater than 1.5 psia is 160,000 gallons/year instead of 170,000 gallons/year. The EPA decided to make the applicability criteria for new and existing sources the same for simplicity. The actual difference between the two levels (10,000 gallons/year) is about the same as the capacity of one tank truck. Also, there will be very few facilities with a rack at a new source with a throughput greater than 160,000 gallons/year and less than 170,000 gallons/year. The EPA expects that this change would have only a minimal effect on emissions. Therefore, it was not incorporated into the HON transfer provisions.

Comment: One commenter (A-90-19: IV-D-32) contended that the EPA has not demonstrated that existing control devices on Group 1 transfer racks can actually achieve 98-percent control efficiency of HAP's. The commenter (A-90-19: IV-D-32) recommended that the EPA either verify that 98-percent control of HAP's is achievable for existing control devices or evaluate the retrofit costs and the incremental benefit to the environment for facilities that must remove existing control devices achieving 95 percent and replace them with slightly more efficient control devices.

Response: The 98-percent control is based on studies used to determine VOC control levels for past NSPS and has not been proven by testing for each individual HAP. These two issues do not weaken the EPA's decision for 98-percent control of HAP's for the following reasons: (1) nearly all HAP's are also VOC's; and (2) HON compliance is not based upon control of each individual HAP. Compliance with the HON may be based upon measurements of either total organic HAP or TOC. Clearly, a control device might have a higher level of control for one particular HAP than for another, but compliance is based on the overall reduction of total organic HAP or TOC from an emission point.

The 98-percent level of control was chosen because it has been shown to be uniformly achievable by well-designed and operated combustion devices. Test data to demonstrate efficiency in a thermal incinerator are not available for each individual HAP. However, the efficiency conclusions for a thermal incinerator (98-percent reduction or an outlet concentration of 20 ppmv) were based on test data using the most difficult VOC compounds to combust, which included several organic HAP's. Therefore, it was concluded that the 98-percent reduction can be achieved for total organic HAP for all well-designed and operated systems (A-79-32, II-B-31). The EPA recognizes that thermal incineration may achieve greater than 98-percent reduction, but test data show that levels greater than 98 percent may not be uniformly achievable under all operating conditions.

The commenter is correct that some existing control devices may not be achieving 98-percent control of HAP's and may have to be retrofitted or replaced in order to meet the requirements of the HON transfer operations provisions. The EPA considered costs to these facilities by applying a flare or incinerator to the outlet stream of any existing control device achieving less than 98-percent HAP reduction. Therefore, the estimation of incremental benefits does address the additional costs to these facilities.

Comment: One commenter (A-90-19: IV-D-41) contended that the EPA did not identify the control level achieved by the top 12% of transfer racks. The commenter (A-90-19:

IV-D-41) also stated that the EPA provided no analysis of how many facilities have vapor balancing and vapor collection, although these were identified as superior control techniques since transfer racks using this technique are exempt from the HON. The commenter (A-90-19: IV-D-41) questioned why vapor balancing and vapor collection were not identified as the floor or MACT.

One commenter (A-90-19: IV-D-85) noted that the Texas new source review program requires control of transfer racks. Hence, the commenter (A-90-19: IV-D-85) asserted that the floor level of control should take into account those facilities for which a BACT or LAER determination has been made prior to June 31, 1991.

Response: The top 12% of the transfer racks achieve 98% reduction [see memorandum titled "Analysis of Hazardous Organic NESHAP (HON) Database to Determine the Floors," Docket item A-90-19: IV-B-277]. Using vapor balancing with vapor collection on a transfer rack exempts the facility from the HON transfer provisions because the EPA's technical analysis showed that under typical conditions, vapor balancing reduces emissions by 98 percent or better, (see memorandum titled: "Efficiency of a Vapor Balancing System," Docket item A-90-21: II-B-28). However, data were not available to identify which SOCMI facilities used vapor balance to control emissions.

Due to the strict schedule for the HON to be proposed and promulgated, time was not available to survey SOCMI facilities or BACT and LAER information. In addition, the EPA is not required by the Act to survey all SOCMI facilities. The Act requires the EPA to set the MACT floor for the best-performing 12 percent of existing sources for which the EPA has emissions information. The EPA considers a review of State and Federal regulations to adequately characterize the controls achieved for the SOCMI nationwide. Information supplied by commenters can also be included in the MACT floor analysis. However, the commenter did not provide any information on how widely vapor balancing is used.

4.1.1 Applicability

Comment: Three commenters (A-90-19: IV-D-58; IV-D-63; IV-D-73) requested that the EPA clarify that the HON is applicable only to transfers of materials from SOCMI processes, and not all materials transferred at any given rack or arm. Two commenters (A-90-19: IV-D-58; IV-D-63) suggested wording for changing the "transfer operation" definition to be applicable only to a major source facilities associated with the transfer of product for one or more chemical manufacturing processes specified in §63.100. Another commenter (A-90-19: IV-D-64) suggested that the definitions of "Group 1 transfer racks" and "rack-weighted average vapor pressure" specify that they do not apply to non-SOCMI product transfers.

Response: The transfer provisions apply to transfer racks as defined in subpart F, when used for transfer of HAP's. It is possible that HAP's associated with chemical manufacturing process units not subject to the HON will be subject to control under the HON if they are transferred at a transfer rack. The definition for "transfer rack" has been revised to clarify this. See section 4.1.2 for further explanation.

The EPA has replaced the "rack-weighted average vapor pressure" definition with a definition for "rack-weighted average partial pressure" as discussed in the response to the next comment.

Comment: One commenter (A-90-19: IV-G-4) contended that the definition of "impurity" in §63.101 of the proposed HON combined with the definition for "Group 1 transfer rack" and "rack-weighted average vapor pressure" in §63.111 of the proposed HON, and the calculation techniques in §63.130(g)(3) of the proposed HON will require control of low HAP content streams. The commenter (A-90-19: IV-G-4) asserted that facilities will be forced to place controls on transfer operations that load materials containing small amounts of HAP's.

The commenter (A-90-19: IV-G-4) suggested that the definition of impurity specify that HAP's considered as impurities not be intended to be part of the product being processed, stored, or transferred. The commenter (A-90-19: IV-G-4) also suggested that the rack-weighted average vapor pressure be defined as the organic HAP's partial pressure considering all materials loaded at the particular loading arm or station. The commenter (A-90-19: IV-G-4) requested that the definition of rack-weighted average vapor pressure or §63.130(g)(3) in the proposed HON include an equation for the calculation of rack-weighted average vapor pressure.

Response: The EPA agrees with the commenter's suggestion for defining an organic HAP rack-weighted average partial pressure instead of a HAP rack-weighted average vapor pressure. The final transfer operations provisions have been revised to replace the definition of rack-weighted average vapor pressure with a definition on rack-weighted partial pressure. The definition is as follows:

> Rack-weighted average partial pressure means the throughput weighted average of the average maximum true vapor pressure of liquids containing organic HAP's transferred at a transfer rack. The rack-weighted average partial pressure shall be calculated using the equation below:

$$P = \frac{\Sigma P_i G_i}{\Sigma G_i}$$

where:

P = Rack-weighted average partial pressure, kilopascals

P_i = Individual HAP maximum true vapor pressure, kilopascals

G_i = Yearly volume of individual organic HAP transferred at the rack, liters

Also, all requirements referring to rack-weighted vapor pressure have been changed to rack-weighted partial pressure. Because of this change, facilities will only be required to control racks if there is sufficient HAP to make the rack a Group 1 transfer rack (i.e., loads greater than 0.65 million liters per year of liquid products containing organic HAP's, and with a rack-weighted HAP partial pressure of 10.3 kPa or greater).

The definition of impurity already implies that it is not "intended" to be part of the product by stating an impurity is "produced coincidentally." The EPA considers this definition to be clear.

Comment: Two commenters (A-90-19: IV-D-64; IV-D-73) requested that the EPA clarify that the provisions in the HON refer to the reduction of the total HAP content and not to each individual HAP. One commenter (A-90-19: IV-D-64) specifically suggested that §§63.126(b)(1), 63.128(a)(7), and 63.129(a)(4) in the proposed HON be edited by the addition of the word "total" so that they refer to total organic compound concentration and total HAP concentration.

Response: The EPA agrees with the commenters that total HAP concentration should be referred to in the transfer provisions, and these changes have been made in the final transfer operations provisions. The term "total organic compound concentration" is used in the process vents provisions to refer to compounds measured according to the procedures of Method 18 of 40 CFR part 60, appendix A. Therefore, the term "total organic compound concentration" cannot be used in the transfer operations provisions where an organic compound concentration could be measured using Method 18 or Method 25A. The EPA considers the term "organic compound concentration" adequate to imply a total organic compound concentration.

4.1.2 Group 1/Group 2 Determination

Comment: One commenter (A-90-19: IV-D-32) supported the selection of throughput and vapor pressure as reasonable criteria for defining Group 1 transfer racks. However, three commenters (A-90-19: IV-D-32; IV-D-73; IV-G-4) contended that the EPA should clarify whether the provisions refer to transfer racks or arms. One commenter (A-90-19: IV-D-73) stated that the definitions for "Group 1" and "rack-weighted vapor pressure transfer rack" do not address a loading arm criterion as in §63.100(b)(5) in the proposed HON. The commenter (A-90-19: IV-D-73) recommended adding definitions for "Group 1 transfer arm" and "arm-weighted vapor pressure." Another commenter (A-90-19: IV-G-4) recommended that the phrase "loading arms and associated equipment dedicated to specific filling operations" in §63.110(d)(1)(i) and (d)(2)(ii) in the proposed HON be substituted for racks; and in §§63.110(d)(2)(i) and (d)(2)(ii) in the proposed HON the phrase "filling operations in non-dedicated loading arms and associated equipment" be substituted for "operations." One commenter (A-90-19: IV-D-64) asserted that the references to loading racks should be changed to refer to loading arms because a loading rack may transfer non-SOCMI chemicals.

Response: The EPA has clarified many of the applicability and group determination provisions regarding transfer operations in the proposed HON. The intent of these provisions has not changed.

The intent of the language in proposed §63.100(b)(5) of subpart F and §63.100(h) of subpart F in the final rule is to assign loading racks, loading arms, or loading hoses to a chemical manufacturing process unit. If the chemical manufacturing process unit is subject to the HON, then the loading rack, arm, or hose is also subject to the HON.

Once it is determined that a rack, arm, or hose is subject to the HON, group status must be determined. Group status is determined for a transfer rack. A transfer rack is defined as the collection of all arms or hoses that are assigned to a chemical manufacturing process unit that is subject to the HON. For example, if a facility has a rack that consists of eight arms and six of these arms are assigned to chemical manufacturing process units subject to the HON and the other two load petroleum refinery products not subject to the HON, then the "transfer rack", as defined for the HON, is made up of the six arms that are assigned to the chemical manufacturing process unit subject to the HON. Group status must be determined based on the vapor pressures and throughputs of the HAP's loaded at the arms at a rack that are subject to the HON. In cases where a rack or arm(s) has been assigned to a chemical manufacturing process unit subject to the HON, the rack or collection of arms must be controlled during transfers of all HAP's regardless of whether those HAP's were associated with SOCMI chemical manufacturing process units.

The EPA determined that assigning equipment to be subject to the HON would be easier from an enforcement and control perspective, as opposed to assigning transfer operations. Also, by assigning equipment, applicability will be more obvious when other rules are promulgated affecting transfer operations under other source categories.

<u>Comment</u>: Three commenters (A-90-19: IV-D-32; IV-D-112, IV-G-4) requested that the EPA clarify the calculation of an annual rack-weighted average HAP vapor pressure. One commenter (A-90-19: IV-D-34) noted that the definition of rack-weighted vapor pressure does not define the temperature to be used in the calculation or specify a method to be used if materials are loaded at different temperatures. Two commenters (A-90-19: IV-D-34; IV-D-112) suggested that the EPA modify the definition of rack-weighted vapor pressure to specify that the vapor pressure should be calculated for each

material at the maximum average monthly temperature of the materials loaded. One commenter (A-90-19: IV-D-32) added that loading vapor pressure should be established at the annual average temperature of the material loaded.

Response: The commenters are correct that the proposed transfer operations provisions did not specify the temperature to be used in the calculation of the annual rack-weighted average HAP vapor pressure. The provisions have been changed to specify that the maximum true vapor pressure be used in the calculation for the vapor pressure. The definition of maximum true vapor pressure has been edited to make it appropriate for the transfer calculation.

Also, it has been specified in the emissions averaging provisions §63.150(g)(4) that the temperature to be used is the annual average loading temperature for a given chemical. Specifications have also been added to the emissions averaging transfer calculation provisions in order to handle the calculation of credits/debits for racks that transfer liquids at different temperatures.

Comment: One commenter (A-90-19: IV-D-33) recommended that Group 2 transfer racks that infrequently load materials with vapor pressures greater than 10.3 kPa should not be required to calculate rack-weighted vapor pressure. The commenter (A-90-19: IV-D-33) stated that if a plant routinely uses a Group 2 transfer rack as a dedicated rack to an organic product with HAP vapor pressures less than 10.3 kPa, the plant would probably not monitor a precise vapor pressure record as long as it could document that it has less than 10.3 kPa.

Response: The requirement for calculating the average rack-weighted partial pressure (the vapor pressure was changed to partial pressure in the final rule) is not overly burdensome, and it would not be additionally burdensome in the situation described by the commenter. It is not necessary to "monitor a precise vapor pressure." The chemical transferred can simply be recorded and then the maximum true vapor pressure can be calculated. The maximum true vapor pressure is also needed under the storage vessel provisions so that it is readily available.

4.2 COMPLIANCE

Comment: Two commenters (A-90-19: IV-D-90; IV-D-100) asserted that the compliance options for transfer operations using vapor balancing are crude and difficult to achieve.

Response: No details were provided by the commenter as to why the vapor balancing compliance options are crude and difficult to achieve. Vapor balancing is frequently used in industry as an emission control and as a product recovery technique. A technical analysis showed that under typical conditions, vapor balancing reduces emissions by 98 percent or better (see memorandum titled: "Efficiency of a Vapor Balancing System," Docket item A-90-21: II-B-28). Therefore, if facilities meet the definition of vapor balancing, they are considered to be in compliance with the provisions.

4.2.1 Performance Testing

Comment: One commenter (A-90-19: IV-D-73) supported the exclusions in §63.128(c) from performance test requirements, particularly the exclusion for combustion with primary fuel in a boiler or heater.

Response: The EPA appreciates the commenter's support.

Comment: One commenter (A-90-19: IV-D-64) stated that the span value for Method 25A in the HON transfer provisions should be allowed to be between 1.5 and 2.5 times the concentration measured, as it states in the method, rather than exactly twice the concentration measured, as specified in the HON.

Response: The EPA agrees with the commenter, and has changed the regulation. The span value is a derived number based on an assumption of the concentration anticipated to be measured. The calibration gas concentrations needed are then determined based on percentage ranges of this span value. Allowing a range for the span value (and hence calibration gases) facilitates meeting these criteria by potentially allowing the same calibration gases to be used for different tests while not adversely affecting the objective of having the measured concentration bracketed by two of the calibration gases.

Comment: One commenter (A-90-19: IV-D-35) questioned which HAP should be used as the density term in the equation used to calculate the mass of organic compounds emitted during a testing interval. The commenter (A-90-19: IV-D-35) also questioned why the organic compound concentration corrected to 3 percent oxygen was not used in the calculation instead of the total concentration of organic compounds.

The commenter (A-90-19: IV-D-35) recommended that the equation for determining the mass of organic compounds emitted during each testing interval use the concentration of each organic compound emitted during the testing interval (Cjn); and be represented by the following equation:

$$M_j = FVs \sum_{n=1}^{x} KCjn$$

Response: Method 25A, for measurement of C_{jn}, does not speciate the HAP content of the stream. The intent of measuring the mass of organic compounds is for calculation the percent reduction across a control device. In the step where the percent reduction across the control device is calculated, the density cancels out and is not needed. The density term is only provided in the equation so that, in the calculation of the mass of organic compounds, units cancel out. The transfer operations provisions have been revised to include the density of hexane in the calculation of percent reduction in order to maintain consistent units; however, the value of the density used has no bearing on the percent reduction calculated.

As in the case of density, a correction of the organic concentration to 3 percent oxygen does not affect the percent reduction calculated. The oxygen correction is only necessary for determining compliance with the 20 ppmv exit concentration requirement.

Comment: One commenter (A-90-19: IV-D-69) claimed that performance tests over one loading cycle are sufficient because filling times for large vessels may take several hours, and three multiple loadings may not typically occur at one time. Another commenter (A-90-22: IV-D-13) contended that it is unduly burdensome to require a performance test duration of three loading cycles for infrequent loading operations.

One commenter (A-90-22: IV-D-13) stated that, for small-volume loading operation owners and operators who have to hire contractor help, a significant portion of the costs of conducting a three-loading-cycle performance test would be for setting up and breaking down equipment and additional transportation and living expenses (especially if they are located in a distant city, or out of state), in addition to the monitoring and analytical work. The commenter (A-90-22: IV-D-13) suggested that the EPA provide an option that infrequent loading operations (once a week or less) may be performance tested for only one loading cycle with duplicate samples.

Response: Typically, performance tests are the average of three runs and, because of the variability in the concentration of HAP's over a loading cycle, a run was defined as a loading cycle for transfer operations. The original intent of testing three different loading cycles was to acquire sufficient data to ensure that a control device is operating properly. However, the EPA does consider this requirement overly burdensome for sources that transfer small amounts of organic HAP's. It is possible for a transfer rack to be considered a Group 1 rack and only transfer into 17 tank trucks or 9 rail cars per year. Requiring testing during three loadings could conceivably be spread out over months. In order to reduce the burden to these sources, the final transfer provisions include an exception for racks that transfer less than 11.8 million liters per year. For these racks, an initial performance test is not required if a design evaluation is provided. The permit authority can require a performance test any time there is a concern that the control device is not working properly.

The suggestion by the commenters to require that only one loading cycle be tested for the performance test was considered; however, the EPA maintains that a test of one loading cycle could not provide sufficient data on the performance of the control device, and therefore would not be meaningful. The EPA opted to require a design evaluation in these situations where sources load less than 11.8 million liters per year through a transfer rack.

A source is required to document that the control device used achieves the required control efficiency during reasonably expected maximum loading conditions. Monitoring parameters can be determined using engineering judgement, or alternatively, a performance test can be conducted to determine monitoring parameters. For carbon adsorbers and condensers, the parameters are provided in §63.128(h) of the final rule.

Comment: One commenter (A-90-22: IV-D-13) contended that the EPA should revise §63.128(a)(8)(ii)(A) regarding the emission testing interval requirements to ensure consistency with §§63.129(a)(4)(iii) and 63.129(a)(6)(iii). The commenter (A-90-22: IV-D-13) contended that in various sections of the proposed transfer provisions 5-minute and 15-minute testing intervals are required but in §63.128(a)(8)(ii)(A) only 5-minute testing intervals are allowed.

Another commenter (A-90-19: IV-D-64) asserted that 15-minute recording intervals are adequate for performance tests. The commenter (A-90-19: IV-D-64) asserted that requiring 5 minute recording intervals for performance tests shorter than 3 hours was unnecessary. The commenter (A-90-19: IV-D-64) suggested that the recording frequency be "no less frequently than every 15 minutes" in §63.129(a)(4)(iii), §63.129(a)(6)(iii), §63.130(a)(1)(i) and §63.130(a)(1)(ii) to allow flexibility to monitor more frequently when it is in the source's interest to do so.

Response: The EPA agrees with the commenters that 5-minute testing intervals are not necessary. The EPA has determined that 15-minute testing intervals should adequately identify performance that is outside of the approved operating parameter ranges. The EPA has also added language to the transfer provisions for recording data "at least every 15 minutes".

Comment: One commenter (A-90-19: IV-D-77) supported the use of either Method 18 or Method 25A for measuring vent stream HAP content from transfer rack applications. However, the commenter (A-90-19: IV-D-77) contended that obtaining certified calibration standards for all the HAP's may not be possible.

Response: The EPA agrees that gaseous standards are not commercially available for all the HAP's. However, section 6.2 of Method 18 allows the option of preparing gaseous standards either from a higher concentration gas cylinder or through liquid or gas injection and provides a procedure for preparing the standards.

Comment: One commenter (A-90-19: IV-D-73) related that many of their plants have a large number of simultaneous fillings of SOCMI and non-SOCMI materials venting to common control devices and loading would have to be suspended for days or weeks to individually evaluate each covered transfer operation. The commenter (A-90-19: IV-D-73) requested that the EPA revise the test methods section for transfer operations to reflect the use of shared control devices for multiple simultaneous loading operations and for loading, processes, and other operations. The commenter (A-90-19: IV-D-73) recommended that an approach similar to §63.116(c) be used which calls for testing at the inlet and outlet of the control device, where performance testing is required. The commenter (A-90-19: IV-D-73) stated that the test requirements must be uncoupled from the loading cycles to make this feasible for large loading operations with common control devices.

The commenter (A-90-19: IV-D-73) also stated that the definition of loading cycle should be revised to refer to the time at which flow to a transfer operation control device begins to the time it ends, regardless of how many simultaneous or overlapping loadings are occurring.

<u>Response</u>: Although the proposed rule did not preclude shared control devices, it was not clear how an owner or operator would demonstrate compliance. Provisions have been added to the rule to clarify that in case of a control device being shared with process vents, the performance test required under the process vent provisions is adequate for the transfer provisions. For control devices shared among transfer racks or arms where materials are simultaneously loaded, the performance test requirements have been revised to be similar to the process vent provisions: three one-hour performance test runs. Simultaneous loading occurs when the beginning and ending times of loading cycles coincide and overlap such that there is no interruption in vapor flow to the control device; as one loading cycle is completed, another one begins or has already begun.

Comment: Three commenters (A-90-19: IV-D-13; IV-D-64; IV-D-73) discussed issues regarding the compliance determination for flares. Two commenters (A-90-19: IV-D-64; IV-D-73) contended that the integrated sampling to measure flow rate, required in §63.128(b)(1)(ii) was unnecessary. One commenter (A-90-19: IV-D-64) contended that times when a compliance determination must be made are not clear. The commenter (A-90-19: IV-D-64) asserted that the intent of the provisions was for an initial performance test to determine compliance with the flare provisions in §63.11(b) of the General Provisions and not to require a compliance determination each time HAP's are loaded and controlled by a flare.

One commenter (A-90-22: IV-D-13) suggested that the EPA modify the 2-hour observation period requirements when a loading period is less than 2 hours for flare performance tests. The commenter (A-90-22: IV-D-13) recommended modifying the provisions to allow either 2 hours or until the loading cycle is completed, whichever is less.

Response: The intent of the provisions, as the commenter stated, are to require a performance test for all control devices other than flares and a compliance determination for flares. The requirement that performance tests are initial is stated in §63.103(b) of subpart F of the proposed rule. Section 63.103(b)(1) of subpart F of the proposed rule refers to §63.7(a) of the General Provisions for the schedule and procedures for performance tests. Section 63.103(b)(1) of subpart F of the proposed rule states that "performance testing, or another form of compliance demonstration," be performed within 120 days of the compliance date, affective date, or initial startup, which ever is applicable. This also indicates an initial test.

In reviewing these provisions for response to this comment, the EPA has determined that the provisions are clear for performance tests but could be misinterpreted for compliance determinations for flares. Section 63.103(b) was changed in the final provisions to include initial compliance determinations and now reads:

> Initial performance tests and initial compliance determinations shall be required only as specified in subparts G and H of this part.

In addition §63.103(b)(1) of subpart F was changed to include compliance determinations and now reads:

> Performance tests and compliance determinations shall be conducted according to the schedule and procedures in §63.7(a) of the General Provisions and the applicable sections of subpart G and H.

The EPA agrees with the commenters that §63.128(b)(1)(ii) from the proposed HON is unnecessary and this paragraph has been removed in the final rule.

The EPA understands the comment regarding the visible emissions test to mean that it seems intuitive that visible emissions will not be present when the flare is shut down. However, the compliance determination is intended to show that the facility is capable of operating in conformance with the requirements specified in §63.11(b) of the General Provisions which requires that there be less than 5 minutes of observed visible emissions in any 2 consecutive hours (as well as other requirements not related to visible emissions). To do this there must be visible emissions documentation covering at least 2 hours.

Flares occasionally exhibit visible emissions. Depending on the type of flare and how it is operated, the most likely period of visible emissions is during the start-up of a flare or when there is a rapid increase in the flow of gases to the flare such as when a second vessel loading is started. The compliance determination is usually scheduled in advance and should be run under representative loading conditions for the facility; e.g., if multiple vessels are loaded simultaneously at the facility, the compliance determination should reflect that the flare is capable of meeting the requirements of §63.11(b) of the General Provisions, including visible emissions, under those conditions. If the routine loading cycle is less than 2 hours, then an observation period for that run including the entire loading cycle is acceptable; if additional loading cycles are initiated within the 2-hour period, then visible emission observations should be conducted. The 2-consecutive-hour period is appropriate for an inspector observing a suspected violation where it would be impractical to precisely coordinate loading cycle start and end.

4.2.2 Monitoring

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) asserted that the HON does not clearly indicate whether or not all connections between the vapor balancing system and tank trucks and tank cars will be monitored. The commenters (A-90-19: IV-D-70; IV-D-99) contended that these connections are likely to be a significant source of toxic fugitive emissions during loading operations, so they should be monitored.

Response: The transfer operations provisions require that all connections in a vapor balancing system used to comply with the rule be inspected. Since Group 1 racks with chemicals being vapor balanced may not be considered subject to the HON, these vapor balancing systems may not be subject to the inspection requirement under the HON transfer operations provisions. Group 2 transfer racks using vapor balancing for credit under emissions averaging are subject to the inspection requirements.

Comment: Several commenters (A-90-19: IV-D-58; IV-D-62; IV-D-73) recommended that the 15-minute monitoring of loading cycles be made standard for all cycles in the final rule. One commenter (A-90-19: IV-D-58) objected to the requirement for 5-minute monitoring of loading cycles of less than 3 hours duration. The commenter (A-90-19: IV-D-58) claimed that the proposed HON contains no rationale for more burdensome monitoring requirements on shorter term loading cycles. One commenter (A-90-19: IV-D-73) contended that the EPA should set a single frequency rather than tailor it to the loading cycle or control device operations. However, the commenter (A-90-19: IV-D-73) continued that if this were not possible, the EPA should retain the options in §63.130(a)(ii).

Response: The EPA has reconsidered the monitoring frequency as requested by the commenters and determined that a 5-minute monitoring frequency is not necessary. The rule also requires that daily averages be recorded and reported. Monitoring at a frequency of 5 minutes instead of 15 minutes does not significantly increase the assurance that the daily averages will identify performance that is out of the parameter ranges. In fact, allowing a frequency of monitoring at 15 minutes instead of 5 minutes could result in situations where the daily average indicates an out-of-range exceedance when 5-minute monitoring data would not. This is because there may be cases where the owner or operator uses a control device for a short time during the day; for example, for a 1-hour loading period. In this case, performing 15-minute monitoring, the owner or operator will have four data points to base the daily average on, while 5-minute monitoring would give 12 data points; if, during this hour, the control device ran for about 5 minutes outside a monitored parameter range, one of the four points might indicate the parameter to be out of the range. The resulting daily average might be out of the parameter range. In the case of 5-minute monitoring, eleven other data points will most likely be enough to bring the average into the parameter range.

It is less likely that the converse would happen, where the fewer data points under 15-minute monitoring, would indicate that the daily average is not outside the parameter range while the 5-minute monitoring would indicate the daily average is outside the parameter range. In order for the daily average to be outside the parameter range, the monitored parameter would have to be either far out of range or be out of range for over half the time. Fifteen-minute monitoring would be sensitive to either of these situations and is a sufficient frequency for monitored parameters. This change will reduce the monitoring and recordkeeping burden while still assuring compliance.

Comment: One commenter (A-90-22: IV-D-13) requested the EPA clarify in §63.126(h) that PRV's needed for safety purposes may open during loading. The commenter (A-90-22: IV-D-13) contended that if a dangerous overpressure situation develops, the HON should not prohibit PRV's from opening to prevent an uncontrolled release or even an explosion.

Response: The EPA considers the requirement in §63.126(h) that pressure-vacuum vents not open during loading to be appropriate. During loading the vapor collection system should be collecting vapors with no significant increase in pressure in the vapor collection system, or in the tank truck or rail car. An opening of a safety relief valve indicates that there is a build up of pressure in the line and therefore, the vapor collection system is not working adequately; this can not be allowed.

As in all operations at a source, emergency situations can arise requiring emission releases to avoid dangerous accidents. The General Provisions provide for a start-up, shutdown, and malfunction plan in §63.6(e)(3). This plan is to include a detailed step-by-step procedure for operating and maintaining the source during periods of malfunction and a program for corrective action for malfunctioning process and air pollution control equipment. Owners or operators may be able to include releases from pressure relief valves in their start-up, shutdown, and malfunction plan if they consider these releases possible. However, the releases would have to be considered a malfunction based on the definition as defined in the final General Provisions. The definition in the proposed General Provisions is as follows:

> Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

4.2.3 Inspections

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-112) supported the use of DOT certification as a demonstration of vapor-tightness. Two commenters (A-90-19: IV-D-32; IV-D-112) stated that the HON correctly recognizes the role of vessel owners in ensuring their vessels are adequately pressure-tested. Two commenters (A-90-19: IV-D-58; IV-D-62) asserted that a rack owner's or operator's liability should not extend beyond his area of responsibility, and recommended that beyond recording properly documented DOT certification, the rack owner has no further liability in connection with the leak performance of a tank truck or railcar. Two commenters (A-90-19: IV-D-62; IV-D-64) recommended that EPA clearly state that fulfilling the recording and recordkeeping requirements associated with the DOT certification will relieve the owner or operator of the loading rack from liability for infractions by the transporter.

Response: The transfer operation provisions clearly state in §63.126(e) that the source owner or operator is responsible for loading organic HAP's into only tank trucks and railcars which either have a current DOT certification, or have been demonstrated to be vapor-tight. In §63.130(e), the provisions clearly state the recordkeeping responsibilities of the source. The EPA does not consider it necessary or advantageous to explicitly state that the source has no further responsibility. The responsibilities under the transfer provisions are explicitly stated in the above mentioned sections of the HON; therefore it is not necessary to make a broad statement of the sources responsibility. Also it is possible that the source has responsibilities under other rules or in specific circumstances. Therefore making a broad statement of the sources' responsibility could be confusing; it is not advantageous for the EPA to make a broad statement in the HON rule regarding the sources' responsibility for leaks that occur.

Comment: One commenter (A-90-19: IV-D-34 and IV-G-4) contended that the pressure change used for the vapor-tightness testing for gasoline trucks is too low compared to the working pressure of tank cars and tank trucks used by the chemical industry, and is therefore inappropriate in the HON rule for transfer operations. The commenter (A-90-19: IV-D-34 and IV-G-4) also asserted that EPA-specified gauges associated with the proposed testing would not be amenable to the high working pressures and may even be damaged during testing.

One commenter (A-90-19: IV-D-34) suggested that the EPA develop vapor-tightness testing procedures based on the maximum allowable working pressures of the tank trucks and railcars normally used by the chemical industry. The commenter (A-90-19: IV-D-34) elaborated on this suggestion in a subsequent notice (A-90-19: IV-G-4) by specifically suggesting the following:

> "Gas pressure tank trucks to 10 psia and tank cars to 25 psia. Bubble test the vessels. Tighten/repair fittings and seals until bubbles are no longer visually or audibly detectable."

Response: The EPA considers the vapor-tightness test to be adequate for most situations. If a facility feels that the vapor-tightness test is not appropriate for the conditions that their vehicles operate under, the facility can choose to load only into DOT-certified tanks. The facility may also use another test method if they validate it using Method 301. These options provide facilities with enough flexibility to accommodate their specific situation.

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) indicated that significant fugitive loading emissions may result after maintenance activity on transport vehicles if they are not leak tested. The commenters (A-90-19: IV-D-70; IV-D-99) recommended that the regulation be changed to clearly require each and every vehicle loaded with a HAP to be inspected for vapor tightness after each maintenance cycle or on a semi-annual basis at a minimum, and that visual inspections of each vehicle and connection be conducted prior to and during loading.

Response: The transfer operations provisions require annual leak tests. The EPA considers this frequency adequate for inspection of tank trucks and railcars for leaks. The gasoline marketing study (Evaluation of Air Pollution Regulatory Strategies for Gasoline Marketing Industry, EPA-450/3-84-012a, July 1984, p. 3-11) documents a significant decrease in leaks from tank trucks that received an annual inspection. The commenter did not provide data specifying why semi-annual inspections were necessary, nor did they describe their benefits over annual inspections.

In regards to visual inspections of each vehicle and connection prior to and during loading, operators are required to operate the vapor collection system in order to collect the organic HAP vapors displaced during loading §63.126(a)(1) and therefore must connect the vapor recovery hoses properly to the vehicles. It is not necessary to specifically require that this be inspected. If the commenter is concerned that leaks will occur during loading due to a failure in the equipment, these will be difficult to visually identify. Also, during loading, the vapors will be collected through the vapor recovery line and most of the vapors will take this path of least resistance instead of through any failure in the equipment. The EPA considers the annual vapor tightness test or DOT certification to be sufficient.

Comment: One vendor (A-90-19: IV-D-8) provided information to the EPA on a leak detection device they claimed could be used instead of Method 21 for compliance with the inspection provisions for collection systems. Others (A-90-19: IV-D-14; IV-D-15; IV-D-17; IV-D-18; IV-D-19; IV-D-20; IV-D-23; IV-D-24; IV-D-25; IV-D-27; IV-D-28), (A-90-20: IV-D-2; IV-D-4) commented on procedures and requirements of Method 21.

Response: The EPA has provided a discussion on Method 21 and the alternate leak detection device in section 5.0 of this BID volume.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-73), (A-90-22: IV-D-7) suggested that the requirements in subpart H for leak detection of equipment are applicable to vapor collection systems or transfer racks. The commenters (A-90-19: IV-D-32; IV-D-33; IV-D-73), (A-90-22: IV-D-7) recommended deleting the requirement in §63.126(a)(3)(i) and §63.126(b)(3)(ii) of the transfer provisions. One commenter (A-90-19: IV-D-73) maintained that in many SOCMI plants there is a plant-wide closed-vent collection system and that it is essential that there be only one regulatory requirement for that system.

One commenter (A-90-19: IV-D-33) anticipated that in the future the subpart H requirements may also apply to non-HON processes. The commenter indicated that it would be most expedient and less burdensome if there were only one requirement for leak detection for all MACT standards.

One commenter (A-90-19: IV-D-73) contended that the HON transfer repair provisions would not allow for delay of repair which is needed for components in HAP service or in closed-vent service. Two commenters (A-90-19: IV-D-32; IV-D-73) requested that the EPA add a provision for delay of repair because transfer vapor collection systems may be common with other processes.

Response: Method 21 leak inspection provisions are assembled into a new section, §63.148 of subpart G. The transfer operations provisions have been revised to refer to the closed-vent system provisions in this new section, §63.148.

The transfer operations provisions have also been revised to refer to the delay of repair provisions in §63.148 of subpart G.

Comment: Three commenters (A-90-19: IV-D-64; IV-D-73) (A-90-22: IV-D-13) asserted that the EPA should exempt equipment from transfer provisions consistently in all sections. Two commenters (A-90-19: IV-D-73) (A-90-22: IV-D-13) contended that the intent of §63.126(i) is to exclude PRV's for safety purposes from the requirements to have a flow indicator or car seal. The commenters (A-90-19: IV-D-73) (A-90-22: IV-D-13) stated that bleeds, drains, etc. are excluded from the car seal or lock requirements by §63.127(d); however, no such exclusions are in §63.126(i). The commenters (A-90-19: IV-D-73) (A-90-22: IV-D-13) urged that these two sections be aligned. Another commenter (A-90-19: IV-D-73) requested that the EPA carry over the exclusion in §63.127(d) to the reporting and recordkeeping section [§63.129(d)].

Response: Sections 63.126(i), 63.127(d), and 63.129(d) have been revised to exclude the same equipment.

4.2.4 Compliance Schedule

Comment: Several commenters (A-90-19: IV-D-32; IV-D-34; IV-D-58; IV-D-62; IV-D-112) claimed that it may not be possible to test leaks within the 15-day period directed in the HON because of the intermittent nature of transfer operations. The commenters (A-90-19: IV-D-32; IV-D-34;

IV-D-58; IV-D-62; IV-D-64; IV-D-112) protested that if a leak has been worked on but the transfer operation component is shut down because all loading has been completed or if the rack is operated sporadically, there would be no way to screen the component to determine if it had been fixed until the next transfer operation, which may exceed 15 days.

Several commenters (A-90-19: IV-D-32; IV-D-34; IV-D-58; IV-D-62; IV-D-112) suggested that the EPA should allow monitoring to take place within the 15 day limit after repair, or at the beginning of the next transfer operation if loading operations have ceased before screening could take place. Three commenters (A-90-19: IV-D-32; IV-D-34; IV-D-62) claimed that since the transfer rack would not be in operation, there would be little to no escape of organic vapors to the atmosphere during idle time. One commenter (A-90-19: IV-D-63) requested that the EPA grant an automatic extension or exemption from repairing leaks within 15 days of detection for low quantity transfer operations that may only be used once or twice a month.

Response: The transfer operations provisions have been revised to allow for testing leaks within the 15-day limit after repair, or at the beginning of the next transfer operation if loading operations have ceased by the time screening would have taken place.

4.3 RECORDKEEPING AND REPORTING

Comment: Two commenters (A-90-19: IV-D-58; IV-D-64) contended that the recordkeeping and reporting requirements in the HON transfer provisions were excessive and burdensome. One commenter (A-90-19: IV-D-92) specifically asserted that the transfer provisions require excessive recordkeeping if the facility does not have a flare.

One commenter (A-90-19: IV-D-34) contended that recordkeeping and reporting requirements are excessive for Group 2 transfer operations and puts the source in the position of being required to keep extensive records and make calculations on a point for which controls are not applicable. The commenter (A-90-19: IV-D-34) asserted that recordkeeping is a needless requirement for Group 2 racks since the determination of applicability for individual racks is to be made based on utilization that occurred during the year preceding promulgation [§63.100(b)(5)(v) in the proposed HON]. The commenter (A-90-19: IV-D-34) claimed that the applicability does not change unless there is a change in the material loaded at the loading arm or hose, which requires the applicability to be redetermined. The commenter (A-90-19: IV-D-34) expressed concern that extensive recordkeeping and reporting requirements subject the source to potential noncompliance for failure to maintain records for a source which needs no control.

The commenter (A-90-19: IV-D-34) suggested that the EPA delete recordkeeping requirements for Group 2 racks and instead require a certification in a semi-annual report that a change in material loaded has not occurred.

Response: The EPA has made every effort to reduce the recordkeeping and reporting burden and to require only those records and reports necessary to determine compliance. For example, the 5-minute monitoring and recordkeeping frequency for control devices has been changed to a 15-minute monitoring and recordkeeping frequency. The recordkeeping and reporting requirements for all the various control devices reflect what is necessary to determine compliance.

The EPA does not consider the recordkeeping and reporting requirements excessive for Group 2 transfer racks. The records are very limited; only design and actual throughput, weight-percent organic HAP, and the rack-weighted partial pressure of chemicals transferred are required. These records are necessary to determine if there has been a change in the rack's group status. The commenter is incorrect in stating that group status is determined based on pre-promulgation data. If the amount and/or specific chemicals loaded changes after promulgation, a Group 2 rack could become Group 1.

The commenter has misinterpreted §63.100(b)(5)(v) in the proposed HON and §63.100(h) in the final rule. The intent of proposed §63.100(b)(5) [§63.100(h) in the final rule] is to explain how to assign a rack/arm which transfers chemicals from more than one chemical manufacturing process. Once the rack/arm is assigned to a chemical manufacturing process, it can be determined if the chemical manufacturing process, and therefore the rack/arm is subject to subparts F and G. Once it is determined that a rack/arm is subject to subpart G, then group status is determined. Therefore, if an owner or operator determines that a rack/arm is not subject to subparts F and G based on proposed §63.100(b)(5)(v) [§63.100(h) in the final HON], then the rack/arm is not subject to the requirements of either Group 1 or Group 2 racks. This section of subpart F has been revised to make this more clear.

<u>Comment</u>: One commenter (A-90-19: IV-D-34) contended that recordkeeping requirements for continuous monitoring of transfer operations are excessive and costly. The commenter (A-90-19: IV-D-34) claimed that loading racks are physically remote from control rooms in some facilities and there is no location where data can be easily stored. As a result, intrinsically safe, weatherproof recorders would be required. The commenter (A-90-19: IV-D-34) claimed that simpler control devices would operate well with a reduced level of monitoring that may allow a less expensive and more practical way of ensuring proper emissions control.

The commenter (A-90-19: IV-D-34) suggested that the frequency of monitoring be significantly reduced to the extent that it may be done without expensive continuous data collection systems.

Response: The monitoring frequency has been reduced from 5 minutes in some cases to 15 minutes in all cases. The EPA recognizes that some new equipment may be required to meet the monitoring, recordkeeping, and reporting requirements of the transfer operations. However, this frequency is considered necessary for ensuring compliance.

The commenter did not provide any specific recommendations for reducing the burden or cost, except for the suggestion to reduce frequency. As explained in the recordkeeping and reporting chapter of the BID, an owner or operator may request site-specific approval to use non-automated monitoring systems if relevant operating parameters are read and recorded no less frequently than once per hour, and daily average values are calculated from the hourly values and recorded, as provided in §63.151. The request must contain: (1) a description of the planned monitoring and recordkeeping system; (2) documentation that the source does not have an automated system; (3) reasons the source is regulating an alternative monitoring and recordkeeping system; and (4) demonstration that the proposed monitoring frequency is sufficient to represent control device operating conditions considering typical variability of the specific process and control device operating parameter being monitored. In approving the request, the permit authority may consider the variability of the parameter, and whether a monitoring frequency that is longer than once every 15 minutes is sufficient to characterize control device operation.

4.4 WORDING OF THE PROVISIONS

Comment: One commenter (A-90-19: IV-D-64) contended that throughout the transfer provisions, the word "recorder" should be changed to "continuous recorder", since "recorder" is an undefined term and "continuous recorder" is defined.

Response: At proposal, the term "continuous recorder" was specifically avoided because it refers to a device capable of generating a record at least once every 15 minutes. In the proposed transfer operations provisions, some records are taken every 5 minutes. Since this was changed in the final transfer operations provisions to records at least once every 15 minutes, all references to "recorder" have been changed to "continuous recorder." As with the other emission points, if there are no monitoring parameter excursions during the day, the owner or operator has the option to retain hourly averages and discard the 15-minute records.

Comment: One commenter requested that the EPA provide English unit equivalents wherever a metric unit appears.

Response: The regulation specifies only metric units because the EPA enforces standards based on the metric system. Conversions to English units would introduce imprecision and lead to situations where enforcement is unclear.

4.5 MISCELLANEOUS

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) asserted that the HON should make provisions for the operator to interlock the flow indicator with an automatic system to stop the loading procedure and close all open lines when the flow meter indicates a leak to the atmosphere.

Response: The flow indicator, car seal or lock-and-key closures required in §63.126(i) ensure that emissions are not diverted to the atmosphere, directly or indirectly, through a valve in the vent system. The EPA does not consider it necessary to require an automatic system with an interlocking flow indicator; however this type of system is not precluded in the transfer provisions.

Comment: One commenter (A-90-19: IV-D-75) asserted that the point of generation for loading operations should be defined as after the point where the stream is destined for disposal, because that point is where emissions may occur. The commenter (A-90-19: IV-D-75) contends that this is the only reasonable definition, and should be adopted.

Response: The EPA does not consider a definition for point of generation to be applicable or necessary to transfer operations. The commenter did not give any details on why point of generation should be defined for transfer operations.

Comment: Two commenters (A-90-19: IV-D-61; IV-D-92) recommended that the HON include more general language to allow for flexibility in controlling vapors from vapor balancing. One commenter (A-90-19: IV-D-92) claimed that the vapors from vapor balancing may be routed back to the process unit, or may be pressurized to the tank car. Another commenter (A-90-19: IV-D-61) contended that the HON should allow vapor collection and return to process units as an alternative control technology for transfer emissions. The commenter (A-90-19: IV-D-61) stated that, for vapor balancing systems that return material to the process unit, the vapor collection system subject to LDAR requirements [such as specified in proposed §63.126(a)(3)] should be defined as the vapor handling equipment up to the point of commingling with raw feed.

Response: The transfer operations provisions allow for owners or operators to combine vapors with process vent streams which are then sent to a control device. There is nothing in the provisions that precludes shared control devices. Also, transfer operations that are under pressure are not subject to the HON transfer provisions.

The EPA considers allowing vapors to be recycled back to the process unit to be acceptable, except in cases where the vapors are only being vented through a process unit and out to the atmosphere. In order to allow for recycling back to the process unit, an option has been added to the transfer operations provisions allowing vapors from transfer operations to be commingled with the raw feed.

Comment: One commenter (A-90-19: IV-D-64) asserted that vapor collection systems should be operated to minimize, rather than prevent, the incidence of organic HAP vapors collected at one loading arm from being passed through another arm, because it would be impossible to completely prevent minor occurrences of this.

Response: The vast majority of vapors can be prevented from passing from one arm through another to the atmosphere; however the EPA considers requiring all HAP vapors from loading arms be prevented from being lost to the atmosphere overly stringent. The EPA agrees with the commenter that it is impossible to completely prevent every molecule of HAP vapors from being diverted through another arm to the atmosphere. In order to better communicate this requirement the provisions in §63.126(a)(2) have been revised.

Comment: One commenter (A-90-19: IV-D-33) suggested that the definition of recovery device in §63.101 be used in §63.111.

Response: Recovery device is defined in much the same way in §63.101 of subpart F and §63.111 of subpart G. In order to eliminate redundancy, the definition in §63.111 of subpart G was removed in the final provisions.

In order to be consistent, the definition for control device was moved from §63.111 of subpart G to §63.101 of subpart F.

Comment: One commenter (A-90-22: IV-D-13) suggested that the EPA clarify that manifolded vent lines on loading arms do not require car seals or flow indicators. The commenter (A-90-22: IV-D-13) stated that, for manifold vent lines, a positive closure such as a plug or a cap is preferred over car seals because car seals are impractical. The commenter (A-90-22: IV-D-13) explained that car seals might need to be removed and reapplied several times at a busy loading rack. The commenter (A-90-22: IV-D-13) contended that monthly inspections of car seals and flow indicators on a manifolded vent line are meaningless.

Response: The provisions requiring a car seal, lock-and-key type closure, or a flow indicator do not apply to manifolded vent lines on loading arms. The provisions apply to the vapor recovery lines.

5.0 EQUIPMENT LEAKS

5.1 STANDARDS

5.1.1 §63.162: General

Comment: Several commenters (A-90-19: IV-D-33; IV-D-34; IV-D-57; IV-D-73; IV-D-77; IV-D-79; IV-D-97) requested that a sufficient period of time should be allowed for installation of equipment required to achieve compliance with the standard. One commenter (A-90-19: IV-D-73) argued that the 6 to 18 months allowed in the proposed rule did not take into account implementation problems that might occur. The group of commenters (A-90-19: IV-D-33; IV-D-34; IV-D-57; IV-D-73; IV-D-77; IV-D-79; IV-D-97) requested a compliance time similar to the 3-year compliance schedule allowed under subpart G. Another commenter (A-90-19: IV-D-33) argued that subpart H should allow up to one-year compliance waiver for installation of controls. Examples of equipment requirements cited include installation of a seal system on a compressor, installation of a sampling connection system or equipping a open-ended valve or line with a cap.

Response: The EPA does not agree with the commenters that sources should be allowed up to 3 years to comply with the provisions in subpart H. Subpart H consists of a combination of work practice requirements for many equipment components and equipment standards for compressors, sampling systems, open ended lines or valves, and pressure relief valves. Unlike the requirements in subpart G, the equipment required by subpart H should not involve long periods of time for design, construction, and installation. The commenters did not provide any information that would justify establishing a source-category-wide compliance schedule for subpart H similar to that provided for subpart G. The EPA recognizes that there may be circumstances present in individual facilities where an extension is appropriate for compliance with certain requirements in subpart H. In such cases, the owner or operator may request an extension of compliance through the provisions of §63.6(i)(4) of subpart A. Section 63.182(a)(6) of subpart H has been added to subpart H to clarify that extensions of compliance may be requested if additional time is necessary for installation of equipment required by subpart H.

Comment: One commenter (A-90-20: IV-D-19) suggested the general standards for process units subject to subpart H were ambiguous and needed clarification. Specific concerns mentioned by the commenter (A-90-20: IV-D-19) were (1) paragraph (a) requires the owner or operator to "demonstrate compliance" but actually is requiring compliance, not the demonstration thereof; (2) paragraph (b) needs to be more explicit as to what records could be reviewed; and (3) paragraph (e) needs to be clarified to specify that it refers to equipment intended to operate under vacuum during normal operations, not that the equipment must be under vacuum at all times including startup or shutdown. In addition, paragraphs (e) and (f) require negative recordkeeping - identification of individual pieces of equipment that are not subject to the subpart.

Response: The EPA considered the commenter's suggestions and, where appropriate, revised the final rule. Specific changes made to the general standards in §63.162 were: (1) Paragraph (a) was deleted because all general compliance requirements are located in subparts F and I; (2) paragraph (b) revised to cite the specific records; and (3) paragraph (e) was deleted. Paragraph (b) was revised to specifically cite the required records to remove any possible ambiguity in the rule regarding required records. Section 63.181 in the final rule specifies all the required records. The requirement in paragraph (e) to document all equipment in vacuum service was removed because it is possible to identify such equipment by inspection of the process unit and this requirement added an unnecessary recordkeeping burden. The requirement in paragraph (f) of the proposed rule to document equipment in HAP service less than 300 hours was retained, however. It was the EPA's opinion that this record was necessary because it would not be possible to determine this by inspection.

Comment: One commenter (A-90-19: IV-D-73) asserted that it is arbitrary to require 1-year compliance waiver requests to be submitted 1 year before the compliance date. The commenter (A-90-19: IV-D-73) requested that the EPA reconsider these stipulations.

Response: The EPA believes that the commenter misinterpreted the requirement in §63.182(a)(2) for submittal of a notification of applicability as also applying to waiver requests. Section 63.182 has been redrafted to remove this source of confusion and specify the dates by which the request must be submitted and the required information. The final rule specifies that the waiver request must be submitted no later than 3 months before the compliance date. This time period is sufficient to permit review of the application and notification before the compliance dates. The submittal date differs from the time period specified in the general provisions (subpart A) because the compliance dates for subpart H and the provisions in subpart A would not allow any requests for compliance extensions.

Comment: Two commenters (A-90-19: IV-D-79; IV-D-105) reasoned that facilities subject to 40 CFR part 61 subpart F should be exempt from 40 CFR part 63 subpart H. The commenters (A-90-19: IV-D-79; IV-D-105) argued that no benefit would be gained by making these facilities comply with subpart H since they are already subject to a similar program. One commenter (A-90-19: IV-D-79) also requested that the EPA provide a phase-in period for facilities currently complying with existing equipment leak rules.

Response: As part of the general evaluation of overlapping requirements in part 60 and 61 rules, the EPA considered whether the equipment leak standard in the Vinyl Chloride NESHAP (subpart F of part 61) was more stringent than the requirements in subpart H. It was concluded that for Vinyl Chloride the stringency comparison needs to be on a case-by-case basis. It is not possible to do the evaluation on a national basis because subpart F of part 61 initially required a self-developed program and the requirement to comply with the provisions in subpart V of part 61 was added later, as an additional requirement. Therefore, the final rule provides that sources subject to both subpart F of part 61 and the HON may request a determination by the permit authority of the program to be implemented. Because the phase I provisions for pumps and valves are identical to those in subpart V of part 61, the EPA believes that this evaluation can be conducted during the first year of the standard and no additional burden will result.

The EPA did not provide a phase-in period for facilities currently complying with existing equipment leak standards in part 60 or 61, as requested by the commenter. The EPA thinks a facility that is already complying with existing rules (i.e., NSPS or NESHAP) should have less difficulty achieving compliance under subpart H because they already have a program in place. The commenter did not provide details on why extra time should be allowed for these facilities.

Comment: One commenter (A-90-20: IV-D-19) suggested that it is not necessary to exclude dual mechanical seal pumps and compressors in VOC service from the override of 40 CFR part 60 or 61 requirements in §63.160(d). The commenter observed that requirements for dual mechanical seal pumps and the requirements for compressors are virtually identical and thus, there is no need to require such exceptions.

Response: The standard has been revised to remove this limitation because, as noted by the commenter, there are no practical differences in the requirements.

Comment: Two commenters (A-90-20: IV-D-38; IV-G-3) argued that application of the requirements of subpart H to phosgene-containing equipment at diisocyanate units would not be useful since these units are presently monitored for any leaks using sensitive perimeter monitoring systems. The commenters suggested that subpart H include a provision that would allow use of area monitoring systems for phosgene containing equipment in lieu of the leak detection provisions that would otherwise apply under subpart H.

Response: The final rule provides provisions that allow establishment of alternative monitoring provisions provided it can be demonstrated that this system can at least detect a 500 ppm leak. This demonstration can be based on dispersion modeling, engineering calculations, or past experience. It is expected that allowable systems will be highly dependent on the HAP's being monitored as well as site layout.

Comment: One commenter (A-90-20: IV-D-27) recommended that an exemption from periodic monitoring be provided for cases where it is not feasible to monitor. The commenter cited 2 examples of cases where monitoring would be infeasible: (1) chemicals which can not be reliably detected by available instruments; and (2) containment areas where the process is isolated due to concerns with health and safety issues or concerns with product contamination. The commenter suggested for these cases the rule require repair if there is visible, audible or olfactory evidence of a leak.

Response: The EPA does not believe that exemption from periodic monitoring is warranted or necessary. For cases where no instrument exists, the rule allows the owner or operator to monitor a surrogate or to request approval of an alternative program. Section 63.179 of subpart H also exempts enclosed process units that are vented through a control device from the periodic monitoring requirements.

Comment: One commenter (A-90-19: IV-D-86) stressed that 6 months to implement the rule for Group I sources is too brief. The commenter (A-90-19: IV-D-86) recommended that small facilities be allowed 3 years to comply, citing the lack of environmental staffing and the cost of instituting the program as reasons to defer implementation. Another commenter (A-90-19: IV-D-92) also noted that a 6-month period was too brief to implement the rule for facilities that are not yet implementing an LDAR program.

Response: The EPA considers that ample notice has already been given. The original agreement was published in the Federal Register on March 2, 1991. The HON was proposed in December 1992 and will be promulgated at the end of February 1994. This is a time span of 3 years and the EPA maintains that this should have provided ample time to determine applicability and implement the means for achieving compliance.

Comment: One commenter (A-90-20: IV-D-27) recommended that the definition of connector be modified to state that connections between sections of a vessel and between the vessel and head gaskets are not considered connectors. This commenter also suggested that the definition of screwed connector be modified to incorporate the definition of connector. The commenter thought that this change would avoid confusion.

Response: The EPA considers the two definitions to be clear and that the possibility of confusion unlikely. The definition of connector states that: "connector means flanged, screwed, or other joined fittings used to connect two pipe lines or a pipe line and a piece of equipment. . " In other words, a connector is a device that connects two pipes or a piece of equipment. Since a vessel is neither a piece of pipe or a piece of equipment, connections between sections of a vessel and between the vessel and head gaskets cannot be considered connectors. The rule defines equipment as:

> Equipment means each pump, compressor, agitator, pressure relief device, sampling connection system, open-ended valve or line, valve, connector, surge control vessel, bottoms receiver, and instrumentation system in volatile hazardous air pollutant service; and any control devices or systems required by this subpart.

The definition of connector was not added to the definition of screwed connector because the definition of connector clearly states that screwed connectors are one type of connector.

Comment: One commenter (A-90-20: IV-D-19) suggested that all units, not just batch processes, be allowed to monitor anytime the equipment is in service with any detectable material, not just VHAP. The commenter suggested this additional flexibility would make the monitoring more cost-efficient.

Response: The EPA agrees with the commenter that this flexibility should be available for continuous as well as batch processes. Accordingly the rule has been modified to allow use of surrogate monitoring to check for leaking equipment.

5.1.2 §63.163: Pumps in Light Liquid Service

Comment: One commenter (A-90-19: IV-D-60) requested that the rule allow an owner or operator to calculate a percentage of leaking valves, connectors, or pumps for groups of similar process units, citing this option as one method of providing meaningful leak rate data.

Response: The EPA is uncertain just what the commenter meant by "meaningful leak rate data". The pump standard, in §63.163(a)(2) of subpart H, allows the owner or operator to calculate the percent leaking pumps on a process unit basis or a source-wide basis. The Committee agreed to this provision to consider the small number of pumps typically in a process unit and potential problems associated with small populations and site-specific concerns. The commenter's suggestion of another option for the calculations does not appear necessary and will add additional complexity to the standard.

Comment: One commenter (A-90-19: IV-D-89) recommended that §63.163(g) of subpart H be modified to also exempt from the monitoring requirements in paragraphs §63.163(b) through (e) any systems that capture and transport leakage from the seal(s) to the process recovery system.

Response: The provisions in §63.163(g) have been revised to allow the owner or operator to route the leakage back to the process where the material will be recycled as well as to a control device. The EPA considers this change to be a clarification since the process recovery system meets the definition of control device under subpart H.

Comment: One commenter (A-90-20: IV-D-19) thought the rule should specify that pumps installed after the applicability date are in the same phase as the remainder of the process unit. The commenter (A-90-20: IV-D-19) suggested that paragraph §63.163(a)(3) be added to read:

> (3) All pumps within a process unit are in the same phase, including pumps installed in the process unit after that applicability date.

Response: The EPA does not think that the suggested language needs to be added to the standard. Subpart H specifies that the phases are determined on a process unit basis not by the individual piece of equipment. The EPA believes that the commenter's concern result from difficulties with implementation of the provisions in 40 CFR part 61, subparts J and V, benzene equipment leaks NESHAP. The benzene NESHAP specifies applicability in terms of each piece of equipment and not on a process unit basis. To prevent similar difficulties from arising in implementation of subpart H, the EPA will explain in enabling materials and inspection manuals that the phases of the pump and valve standards are determined on a process unit basis and addition of a new valve or pump does not alter the phase the equipment is considered to be in.

Comment: One commenter (A-90-20: IV-D-19) requested clarification of when follow-up monitoring is required for a pump that has been repaired. The commenter (A-90-20: IV-D-19) suggested amending §63.163(c)(1) by adding the following:

> Repaired shall mean that indications of liquids dripping from the pump seal are no longer present when the pump is returned to VHAP service. Subsequent monthly monitoring may be used to confirm that repair was successful.

The commenter reasoned since monitoring is performed monthly, monitoring during the next scheduled monitoring period should be acceptable.

Response: The term repaired is defined in §63.161 as "equipment is adjusted or otherwise altered to eliminate a leak as defined in the applicable sections of this subpart." Thus, a pump cannot be classed as repaired until it is monitored and is confirmed to be below the action level. This confirmation monitoring is an inherent part of the LDAR program and should not present an undue burden. The EPA does not consider the suggested change is necessary.

Comment: One commenter (A-90-20: IV-D-19) recommended that the EPA not require monitoring of DMS pumps when a leak is determined visually. The commenter (A-90-20: IV-D-19) observed that §63.163(b)(3) specifies that indications of liquids dripping found during a visual inspection of a pump are considered leaks. The commenter (A-90-20: IV-D-19) thought that this a sensible approach, which eliminates unnecessary extra monitoring, but is not consistent with §63.163(e)(4)(i). The latter section requires monitoring if a DMS seal pump shows indications of liquids dripping at the time of the visual inspection. The commenter (A-90-20: IV-D-19) recommended that the EPA make the two sections consistent.

Response: The two cited sections in the pump standard differ because the DMS seal leak could be a loss of barrier fluid and would not result in loss of volatile materials or an instrument reading of 1000 ppm. In such cases, the DMS seal would not be considered to be leaking. The provisions in §63.163(b) of subpart H apply pumps such as single mechanical seal pumps, reciprocating pumps, etc. In these cases, the presence of a drip will indicate loss of process fluid that is in light liquid service and undoubtedly would be measured as a leak. The EPA, therefore, did not revise the provisions as suggested because some owners or operators subject to the standard would object to the loss of the opportunity to show that the drip from a DMS is not a leak.

Comment: One commenter (A-90-20: IV-D-19) suggested that the percent leaking pumps calculation is not appropriate for process units/plant sites with a large number of DMS or sealless pumps. The commenter (A-90-20: IV-D-19) claimed that some process units/plant sites have a large number of DMS and sealless pumps. Since these pumps are not included in the P_L term of the percent leaking pumps calculation (monitoring required by §63.163(e)(4)(i) is not included in the definition of P_L), a plant with over 90 percent non-single seal pumps would never exceed the 10 percent limit which triggers the pump QIP. Plants in this situation should not be required to calculate percent leaking pumps, as the data is meaningless. The commenter (A-90-20: IV-D-19) suggested exempting these plants from the requirement to calculate percent leaking pumps.

Response: The EPA agrees that in such cases the calculation is unnecessary. The recommended language was added to the pump provisions in §63.163 of subpart H.

5.1.3 §63.164: Compressors

Comment: One commenter (A-90-19: IV-D-92) recommended that the use of double mechanical seals should not be required. Instead, the commenter (A-90-19: IV-D-92) advocated that the standard be expressed as a performance standard that would necessitate use of the appropriate seal.

Response: As with pumps, a performance standard for compressors is not feasible. Even though compressor seals can be equipped to release emissions into a conveyance mechanism, measurement of these emissions is impracticable. The standard allows use of systems that vent the seal area to a control device as well as dual mechanical systems or sealless compressors.

Comment: One commenter (A-90-19: IV-D-92) asserted that compressors with double mechanical seals should be exempt from monitoring requirements.

Response: Compressors equipped with double mechanical seals are exempt from the LDAR program. The only requirement is for a sensor to detect failure of the seal system or barrier fluid system. These sensors are necessary because seals can fail and large emissions could result.

Comment: One commenter (A-90-20: IV-D-19) recommended several clarifications to the provisions for compressors vented to closed-vent systems. The commenter (A-90-20: IV-D-19) requested clarification of the type of enclosure that would meet the criteria for exemption: Would a laboratory type hood be considered applicable, or does the enclosure need to fully encase the equipment? The commenter (A-90-20: IV-D-19) also requested that the closed-vent system be allowed to vent back to the process, as well as to a control device. The commenter (A-90-20: IV-D-19) cited provisions in the benzene waste operations NESHAP [See 40 CFR 61.342(c)(1)(iii) of subpart FF of part 61] as an example where the EPA has allowed recycling in lieu of destruction only. The commenter (A-90-20: IV-D-19) questioned the relevance of the requirements of paragraphs 63.164(c) through (f) of subpart H for compressors equipped with closed vent systems. It was also noted that the last phrase of §63.163(h) "except as provided in paragraph (i) of this section" is unnecessary. Paragraphs 63.164(h) and (i) are separate exemptions, not dependent on each other.

Response: The provision in §63.164(h) is deliberately drafted in a manner that does not specify the actual equipment that can be used. That is, the standard does not specify that the compressor be fully enclosed or equipped with a hood, or that other specific equipment be applied. The requirement is to collect any leakage and convey it to a control device. This requirement can be met by any number of different systems. Systems that enclose ports in the seal area and evacuate the collected gases are one acceptable means of compliance as are systems that enclose the entire compressor. While the EPA understands the desire for more specificity as to what is acceptable means of compliance, the EPA is also concerned that the standard be achievable by a number of different systems and allow flexibility. Therefore, the language in §63.164 was not revised to be more explicit as requested by the commenter.

In response to the commenter's concerns, §63.164(h) was edited to allow venting of emissions to the process or to a control device. The cross references to the other provisions in §63.163 were also revised to clarify the exempted paragraphs.

5.1.4 §63.165: Pressure Relief Valves in Gas/Vapor Service

Comment: One commenter (A-90-20: IV-D-19) thought the monitoring requirements for pressure relief devices in gas/vapor service to be unclear. Specific questions raised by the commenter (A-90-20: IV-D-19) were: Did the EPA intend for pressure relief devices to be monitored initially in order to determine that they meet the less than 500 ppm above background criteria, and if not why does §63.181(b)(4) require retention of documentation of compliance tests required in §63.165. If it was the EPA's intention to require such monitoring, the commenter (A-90-20: IV-D-19) recommended that it be written out in this section.

Response: The intent of the provisions in §63.165(a) is to demonstrate that the PRV has reseated properly after an overpressure discharge. The standard does not require a compliance test or routine monitoring.

Comment: One commenter (A-90-20: IV-D-19) requested that the EPA clarify whether pressure release events are isolated incidents or can occur as a series of discharges over a relatively short time period. For process units that cannot be shutdown immediately upon upset, the commenter thought the present language in §63.165(b) would require monitoring with no benefit under potentially dangerous conditions. Another commenter (A-90-19: IV-D-34) requested that §63.165(b)(2) be edited to require monitoring within 5 days of being repaired or returned to VHAP service.

Response: The EPA believes that the provisions in §63.165(b) already accommodate the situation described by the first commenter since delay of repair is allowed. The purpose of the monitoring is to confirm that the PRV has reseated properly after an overpressure discharge. The definition of pressure release has been revised to clarify that it may be a single isolated discharge or a series of releases over a short time period due to the same process malfunction.

The EPA agrees with the other commenter's that the time period following a process unit shutdown should be clarified. The provisions in §63.165(b)(2) have been revised to clarify that the 5 days is following repair and being returned to HAP service.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-34) suggested that pressure relief valves which are unsafe to monitor or repair should be exempted from these requirements. One of the commenters (A-90-19: IV-D-32) noted that a major safety risk would be posed if a pressure relief valve in gas/vapor service released while monitoring or repair personnel were present.

Response: The intent of the provisions in §63.165 is to ensure that there is no leakage from the PRV during normal operations (i.e., periods when there is not an overpressure discharge). There are two primary alternatives for controlling equipment leaks from PRV's: use of a rupture disk in conjunction with the PRV, or use of a closed vent system. If an owner or operator elects to use either of these control options, there is no requirement to monitor the PRV after repair.

The standard also allows use of a PRV alone provided the PRV is demonstrated to have been returned to less than 500 ppm within 5 days of the overpressure discharge, unless repair is technically infeasible without a process unit shutdown. While the commenters did not provide examples of situations where it would be unsafe to repair or monitor the PRV, the EPA believes that these cases would also be situations where it was infeasible to repair without a process unit shutdown. Thus, the standard already provides the exemption that the commenters requested. The standard does not require routine monitoring of PRV's or annual compliance demonstrations so the EPA does not believe that the provisions pose a major safety hazard to monitoring personnel.

Comment: Two commenters (A-90-19: IV-D-77; A-90-20: IV-D-19) recommended that the rule allow installation of a rupture disk under the pressure relief valve in lieu of monitoring after a pressure release or monitoring of the closed vent system. Several other commenters (A-90-19: IV-D-69 and IV-D-89; A-90-20: IV-D-9) suggested that rupture disks and sensor systems be exempt from the provisions of this section because these systems detect emissions before they can be released to the atmosphere.

Response: The rule has been clarified to explicitly exempt PRV's equipped with rupture disks from the follow-up monitoring requirements of §63.165(b)(2). For these systems, the standard requires that a new rupture disk be installed upstream of the PRV no later than 5 days after the pressure release, unless the process unit must be shutdown in order to install the replacement rupture disk.

Comment: One commenter (A-90-19: IV-D-77) requested clarification of the requirements for situations in which relief valves are located on a closed vent system for protection of the vent system equipment. The commenter (A-90-19: IV-D-77) proposed that instead of being subject to monitoring, these systems could have a pressure indicator, located between the rupture disk and the PRV, to indicate the need for replacement. The commenter (A-90-19: IV-D-77) noted that these valves are not equipped with an isolation valve, which means the soonest these valves can be repaired would be at the next process unit shutdown.

Response: Rupture disks installed upstream of a PRV are one of two primary alternatives for control of emissions from PRV's. As noted in response to the preceding comment, §63.165 has been revised to clarify that rupture disks are one means of compliance with the standard. Thus, the approach proposed by the commenter is acceptable. Although it is not clear from the comment letter whether there is confusion regarding the applicability of the requirements for PRV's, the EPA would like to clarify that the provisions in §63.165 only apply to PRV's that are in organic HAP service (at least 5 weight percent organic HAP). Thus, these provisions primarily affect PRV's on process equipment.

Comment: One commenter (A-90-19: IV-D-34) requested that an exemption be provided for PRV's connected to a common vent header which discharges to the atmosphere.

Response: Section 63.165(c) exempts PRV's connected to closed vent systems with control devices from the monitoring requirement because if the PRV does not reseat properly the leakage will be controlled. If the commenter's facility connects the PRV's to a control device before discharge to the atmosphere there is no need to monitor the PRV after a discharge. However, if the commenter's facility has PRV's connected to a common header and there is no control before discharge to the atmosphere, the commenter will either have to install rupture disks, a control device, or take another approach toward determining if the PRV has reseated properly. The EPA does not believe that it would be appropriate to exempt PRV's from the requirement merely because it would be inconvenient to comply.

5.1.5 §63.166: Sampling Connection Systems

Comment: Two commenters (A-90-20: IV-D-19; IV-D-27) recommended that the definition of closed-loop system be modified to clarify the intent of the provisions. The commenters'(A-90-20: IV-D-19; IV-D-27) understanding is that the intent is to insure that air emissions from sampling are minimized and the purged material is returned to the process. One commenter (A-90-20: IV-D-27) suggested that the proposed definition of closed-loop system implies there are no air emissions and thus there is no difference between closed-loop and in-situ sampling systems. The other commenter (A-90-20: IV-D-19) thought that §63.166(a) could be interpreted to mean both the purged material and the sample need to be collected in a closed-purge, closed-loop, or closed vent system. The commenter (A-90-20: IV-D-19) requested that this section be clarified. Another commenter (A-90-19: IV-D-34) also requested confirmation that rinsing of sample bottles prior to sample collection is acceptable as long as the rinsate is collected and the container is not left open to the atmosphere.

Response: The EPA agrees with the commenters that the intent of the sampling connection system provisions is to ensure that purged material is captured and returned to the process or destroyed, and does not apply to the sample. Section 63.166 has been clarified regarding the applicability of the requirements to the sample material.

The EPA also agrees that it is acceptable to rinse sample bottles provided the rinsate is collected and properly recycled or destroyed. This approach is fully consistent with the intent of the provisions which is to prevent purging of process fluids to the ground, sewer drain, or atmosphere. The potential for a small amount of emissions during the sampling procedures is recognized and a zero emissions standard is not intended.

Comment: One commenter (A-90-19: IV-D-34) requested that the EPA clarify whether analyzer vents are considered to be part of the sampling system and subject to controls under §63.166. The commenter (A-90-19: IV-D-34) referenced several EPA documents and rules to support his view that sampling connection systems apply at the point the sample is removed from the process.

Response: The EPA agrees that gas streams exiting an analyzer are not considered to be subject to the provisions of §63.166. The commenter is correct in noting that the focus of this provision is at the point where samples are removed from the process. The EPA believes that the question has arisen due to the lack of clarity regarding the meaning of the term analyzer vent. In particular, the term "analyzer vent" has on occasion been used to refer to the gases purged through a sample manifold system. In these systems, the analyzers remove a sample of the gas from the manifold. The provisions in §63.166 would apply to the gas flow through the manifold, but would not apply to the gases exiting the analyzer.

Comment: Two commenters (A-90-19: IV-D-34; IV-D-54) suggested that the EPA provide examples, in the form of diagrams or drawings, showing acceptable sampling systems, including commercially available systems. The commenters (A-90-19: IV-D-34; IV-D-54) indicated that illustrations are necessary because the definitions in the proposed rule are confusing.

Response: The EPA agrees that drawings could be helpful to supplement the definitions given in the regulation. Although the commenters did not clearly indicate whether they wanted the illustrations to appear in the regulation or the BID, the EPA feels that the BID would be the more appropriate place. An illustration has been provided in the appendix of this document.

Comment: One commenter (A-90-20: IV-D-19) recommended that §63.166(c) be expanded to exempt sampling systems without purges from the equipment standard requirements in paragraphs (a) and (b). The commenter (A-90-20: IV-D-19) also recommended that non-routine grab samples taken during process upset conditions be exempted.

Response: Section 63.166(c) has been revised to also exempt sampling systems without purges from the requirement to use closed-loop, closed-purge, or a closed vent system. The change was made because it is possible in some cases to design sampling systems to collect samples without purging the sample line. It is expected that the owner or operator of the source will be able to show that the system is operated without purges or why it is infeasible to purge materials through this sampling system.

The suggestion that non-routine grab samples also be excluded from the provisions in §63.166 was not adopted. The EPA believes that the owner or operator should include activities such as this in the startup, shutdown, and malfunction plan. The provisions in subpart H are intended to apply during periods of normal operation and not during malfunctions and process upsets, which should be addressed in the source's startup, shutdown, and malfunction plan contained in §63.6(e)(3) of the General Provisions.

Comment: One commenter (A-90-19: IV-D-60) requested that equipment in heavy liquid service, that has a concentration of less than 500 ppm in the line, be exempted from the sampling connection system requirement. The commenter (A-90-19: IV-D-60) suggested that this exemption would be appropriate because some materials have extremely low vapor pressures and, therefore, essentially no emission potential.

Response: If the commenter is referring to a stream composition less than 500 ppm of HAP, the provisions would not apply. In order for the provisions to apply, the equipment must be in organic HAP service, which is defined as:

> In organic HAP service means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight of total organic HAP's. . .

On the other hand, if the commenter is referring to the concentration of the vapor above the liquid, the EPA does not agree that it would be appropriate to exempt equipment in heavy liquid service from this requirement. Heavy liquid streams have the potential to emit VOC's and organic HAP's to the atmosphere, particularly from purged materials that are at elevated temperatures or materials purged to sewer drains. Since the requirements for sampling connection systems allows the use of closed-purge systems as well as closed-loop sampling, the EPA believes the standard is achievable for equipment in heavy-liquid service.

5.1.6 §63.167: Open-ended Valves or Lines

Comment: One commenter (A-90-19: IV-D-34) requested that an exemption be provided for emergency shutdown systems, which are designed to open automatically during process upsets. These automatically opening vent lines must never be closed even with a second valve.

Response: The EPA agrees that automatically opening vent lines which are part of an emergency shutdown system should not be required to add a second valve or cap. It was also determined that the requirements for block and bleed systems were not appropriate. Section 63.167(d) was, therefore, added to the final rule to address a potential safety hazard.

Comment: One commenter (A-90-19: IV-D-60) requested that equipment in heavy liquid service be exempt from this requirement due to the very low potential for emissions. The commenter (A-90-19: IV-D-60) reported that a Method 21 survey of their caprolactam plant showed the majority of 5,000 open ended lines had no detectable emissions readings and the single highest concentration recorded was 21 ppm.

Response: According to the analysis that accompanied a previous equipment leak standard (40 CFR part 60, subpart VV, [48 FR 48328]), these controls are cost-effective and it is common practice in the industry to cap lines.

5.1.7 §63.168: Valves in Gas/Vapor Service and in Light Liquid Service

Comment: One commenter (A-90-19: IV-D-92) suggested that the subpart should include a random 200-valve test as an alternative standard for valves. The commenter (A-90-19: IV-D-92) recommended that such an option could allow units that stayed below 2 percent leaking valves (where a leak is defined as 2000 ppmv) for 2 years to randomly test 200 valves or 10 percent of the valves annually. Whenever the unit exceeded 2 percent leaking valves, the owner would be required to resume quarterly monitoring. The commenter (A-90-19: IV-D-92) stated that this option would provide an incentive for compliance.

Response: Although certain aspects of the commenter's suggestion have merit, it must be noted that the numbers mentioned are significantly less stringent than the levels agreed to by the negotiating committee. For example, after the first year, the definition of leak becomes 500 ppmv, not 2,000 ppmv as suggested by the commenter. Additionally, the commenter indicated that quarterly monitoring would be appropriate for units exceeding the 2 percent leakage rate, yet the original agreement was for QIP or monthly monitoring for this situation.

The EPA also notes that the committee did consider several options for random-sampling alternatives, all of which were rejected due to difficulty in determining whether samples were truly random.

Comment: Two commenters (A-90-19: IV-D-32; A-90-20: IV-D-3) requested that the EPA clarify §63.168(e)(1) by specifying how leaks that recur within 90 days of repair should be considered in the calculation of percent leaking valves. The commenters (A-90-19: IV-D-32; A-90-20: IV-D-3) questioned whether the leak should be (1) treated as a new leak; (2) treated as a leak for which the initial attempt at repair failed; or (3) put on the list for repair during the next process unit shutdown. The commenter (A-90-19: IV-D-32; A-90-20: IV-D-3) suggested that either (1) the recurrence be treated as a new leak from a repair standpoint, but not be counted in the percentage of leaks; or (2) the equipment be put on the nonrepairable list and repaired at the next shutdown.

Response: Section 63.168(e)(1) was clarified to specify that the calculation of percent leaking valves is based on the number of valves determined to be monitored during the periodic monitoring. Thus, if the process unit is on a quarterly monitoring schedule the follow-up monitoring at 90 days would be conducted as part of the routine quarterly screening and if the valve is found to be leaking again would be counted as a leak. If the process unit is on a semiannual or annual monitoring schedule, the valve would have to be repaired but not be counted in the calculation of percent leaking valves. If the owner or operator determines that the valve must be removed in order to repair it in the shop, then the valve would be put on the nonrepairables list.

Comment: One commenter (A-90-20: IV-D-19) requested that the EPA clarify the monitoring schedule if a new valve is installed. This commenter (A-90-20: IV-D-19) noted that §63.168(f) specifies procedures for repairing leaking valves, but does not provide for repairs completed by replacing the valve. The commenter (A-90-20: IV-D-19) noted that it would be unmanageable if the valve must be kept on a separate monitoring schedule from the other valves in the process unit.

Response: As discussed earlier in response to a similar comment on the pump standard, subpart H specifies the monitoring frequency and the phases of the standard on a process unit basis. The standard does not establish monitoring frequency for individual items of equipment. The EPA agrees with the commenter that it would be unmanageable to have individual valves on different monitoring schedules. To minimize possible implementation problems, the EPA will explain in enabling materials and inspection manuals that the phases of the pump and valve standards are determined on a process unit basis and addition of a new valve or pump does not alter the phase the equipment is considered to be in or the monitoring frequency of the equipment.

The EPA would also like to clarify that §63.168(f) provides a partial list of actions that can be taken as a first attempt at repair. These examples were included at the request of some Committee members because of their experiences in implementing the existing equipment leak standards in 40 CFR parts 60 and 61. The intent of including §63.168(f) was to illustrate the extent of actions necessary to comply with the first attempt at repair. Valve replacement was not included because the Committee did not envision this action as being a first attempt at repair measure. In many cases, valve replacement would require a process unit shutdown or bypassing of equipment and draining of process fluids from the lines in the affected area.

Comment: One commenter (A-90-20: IV-D-19) argued that the standard should not require post-repair monitoring of unsafe-to-monitor valves and connectors. The commenter (A-90-20: IV-D-19) noted that it is not feasible to remonitor the equipment within 3 months as required by §63.168(f)(3).

Response: To ensure that there is no possibility of misunderstanding the requirements for unsafe-to-monitor valves, the provisions in §63.168(h) have been edited to exempt these valves from the requirements in paragraphs (b) through (f) of §63.168.

Comment: A number of commenters (A-90-19: IV-D-33; IV-D-60; IV-D-73; IV-D-86) (A-90-20: IV-D-20) recommended that the proposed rule be modified to allow facilities to begin Phase III on the applicability date of the rule. The commenters (A-90-19: IV-D-60; IV-D-73; IV-D-86) (A-90-20: IV-D-20) submitted that disallowing this would penalize facilities that have established low leak rates or that have implemented the proposed rule before the required applicability date.

The commenters (A-90-19: IV-D-60; IV-D-73; IV-D-77; IV-D-86) (A-90-20: IV-D-20) suggested a variety of criteria for entering Phase III, including allowing the source to decide when it is appropriate and demonstrating that the required percent leaking criteria was achieved during the two most recent monitoring periods. Specifically, one commenter (A-90-19: IV-D-73) suggested that if an owner or operator can demonstrate at any time that the source qualifies for reduced monitoring frequency, the source should be allowed to adopt the reduced monitoring frequency. Another commenter (A-90-19: IV-D-14) recommended that the source be required to demonstrate that the criteria were achieved during the two most recent monitoring periods. Another commenter (A-90-19: IV-D-77) thought that the rule should allow the owner or operator to elect the monitoring frequency most appropriate to the source's current status because the necessary records may not have been retained.

Response: The EPA agrees that the final rule should allow owners or operators the flexibility to initiate Phase III at anytime, and it was intended that this option would be available. Subpart H has been revised to clarify this point. This clarification does not, however, allow an owner or operator to elect to use reduced monitoring frequencies without Method 21 data to document achievement of lower leak rates for the required periods.

Comment: One commenter (A-90-19: IV-D-60) requested that the rule allow the owner or operator the option of calculating percent of leaking valves on a plant-wide basis or a process-unit basis. The commenter (A-90-19: IV-D-60) also requested that the rule allow the owner or operator the option of grouping units that are in similar service. The commenter (A-90-19: IV-D-60) maintained that this would assist in providing meaningful leak rate data and would still meet the intent of the rule.

Response: The EPA is uncertain just what the commenter meant by meaningful leak rate data. In Phase III of the valve standard, the monitoring frequency is determined by the percent leaking valves. Since the number of valves in a typical SOCMI process unit is quite large (i.e., several hundred to thousands), the variability of the estimate should be small and it should not be necessary to combine data from several units to obtain a reliable estimate of performance. It should also be noted that the provisions in the valve QIP [§63.175(e)(2)] allow pooling of performance data for purposes of identifying measures to improve performance. Therefore, if the commenter's concern was with obtaining better data on performance for certain operating conditions, the standard already allows this.

Comment: One commenter (A-90-20: IV-D-19) recommended that the EPA reconcile two conflicting methods for determining whether excessive leaks trigger additional requirements for process units following annual monitoring. The commenter (A-90-20: IV-D-19) explained that §63.168(d)(1) specifies that "process units with 2 percent or greater leaking valves, calculated as a rolling average of 2 consecutive periods" shall either go to a QIP or implement monthly monitoring. For a process unit in annual monitoring, this conflicts directly with §63.168(e)(2), which states that "the percent leaking valves shall be calculated as...an average of any three out of four consecutive monitoring periods for annual monitoring programs". Even though a process unit has reached an annual monitoring program, it may still obtain two consecutive periods of greater than 2 percent leaking valves. For example, a process unit with an annual monitoring schedule could monitor for four quarters and have the following percent leaking valve numbers: 1 percent, 1 percent, 3 percent and 5 percent. According to paragraph (e)(2), any three out of four of these periods could be used, so the unit would have an average of 1.67 percent leaking valves [(1% + 1% + 3%)/3 = 1.67%], and would need to drop to quarterly monitoring, as per paragraph (d)(2). But paragraph (d)(1) says that the 2 consecutive monitoring periods greater than 2 percent put the process unit into either monthly monitoring or a QIP. Which is correct? Since paragraph (e)(2) matches the method given in the preamble for determining monitoring frequency, it is assumed that paragraph (d)(1) is in error.

Response: In drafting the provisions of §63.168(d), it was assumed that a source with an annual monitoring program would not have quarterly monitoring data and, thus, the scenario presented by the commenter could not arise. Since this comment suggests that it is possible for the provisions in §63.168(d) to be interpreted in a manner that appears to conflict with the provisions in §63.168(e), the provisions in §63.168(d) have been edited to remove this possibility. Section 63.168(d)(1) now refers to the percent leaking calculated according to §63.168(e).

Comment: One commenter (A-90-19: IV-D-73) recommended that the difficult-to-monitor criteria be revised to not require elevation of monitoring personnel above support surfaces that are accessible only by fixed ladder. The commenter (A-90-19: IV-D-73) noted that it is unsafe to carry stepladders up fixed ladders. Another commenter (A-90-19: IV-D-69) recommended that the criteria for both "difficult-to-monitor valves" and "inaccessible connectors" should be the same - i.e., equipment is no more than 2 meters above a support surface. The commenter (A-90-19: IV-D-69) noted that a valve and a connector next to each other would be handled differently under the proposed provisions.

Response:

A clarification has been added to the equipment leak valve provisions to specify that valves are considered "difficult-to-monitor" if they are more than 2 meters above a support surface or the elevation of personnel on support surfaces can not be conducted safely at anytime.

Comment: One commenter (A-90-19: IV-D-73) recommended that §63.168(i)(2) be deleted. The commenter (A-90-19:

IV-D-73) stated that even in new facilities an owner or operator cannot ensure that all valves will be readily accessible because placement is dictated by process requirements.

Response: The EPA contacted the commenter to determine the reasons this requirement had not been an issue under the benzene equipment leaks standard in 40 CFR 61, subparts J and V. The commenter noted that there are major differences between the number of units and the amount of equipment affected by the HON and by the benzene equipment leak NESHAP. Due to the greater magnitude of the HON, it is just not possible for existing sources to reconfigure process equipment to accommodate this standard. This commenter also pointed out that the SOCMI equipment leaks NSPS (40 CFR 60, subpart VV) placed no limit on the number of difficult-to-monitor valves in existing units affected due to modification or reconstruction and allowed new units to have up to 3 percent difficult-to-monitor valves. Thus, §63.168(i)(2) was revised to be consistent with the provisions in the NSPS.

Comment: One commenter (A-90-19: IV-D-89) questioned the benefit of monitoring "leakless" valves with the same frequency as all other valves. The commenter (A-90-19: IV-D-89) suggested that no more than quarterly monitoring should be required for these valves.

Response: During negotiations, the committee discussed providing special provisions for different types of valves and concluded that this additional complexity was not useful. Specifically, if a process unit had a large number of leakless valves, it probably would not have 2 percent or greater leaking valves and thus not be subject to monthly monitoring or QIP requirement. It is very likely the process unit could qualify for semiannual or annual monitoring frequency. Conversely, if there were only a few leakless valves, the burden of identifying them and treating them differently would undoubtedly exceed the monitoring burden.

Comment: One commenter (A-90-20: IV-D-19) suggested that unsafe-to-monitor and difficult-to-monitor valves should be excluded from the percent leaking valves calculation. The commenter (A-90-20: IV-D-19) noted that because of the infrequent monitoring performed on these valves, unsafe-to-monitor and difficult-to-monitor valves should not be counted in the percent leaking valves calculation given in §63.168(e)(1). If all valves in this group are monitored in one period, the results could be very skewed in one direction or another, giving an unrealistic picture of the remaining valves in the process unit. These valves should be excluded from both the number of leaking valves (V_L) and total valves (V_T) terms. The commenter (A-90-20: IV-D-19) also thought that the verbiage for how to calculate V_L in paragraph (e)(3)(i) is hard to follow; an equation would be more helpful, along with some rewording of paragraphs (e)(3)(i) and (e)(3)(ii), which address nonrepairable valves.

Response: The equation as drafted in the proposed rule calculated the percent leaking in the population of valves monitored during that particular monitoring cycle. The EPA doubts that the commenter's concern is likely to arise in practice since the commenter can schedule monitoring of valves designated as "difficult-to-monitor" or "unsafe-to-monitor" to avoid this problem. There is no requirement to do this monitoring during a periodic monitoring cycle and in fact it is assumed that this monitoring would not be conducted during routine operations. Thus, it seems highly unlikely for a bias to be introduced. Moreover, since these valves are, by definition, unlikely to be moved frequently there is no reason to believe that these would have higher leak frequencies than the accessible valves. The EPA also suspects that there may have been some confusion on the part of the commenter between the terms "nonrepairable" and "difficult-to-monitor" and "unsafe-to-monitor". Thus, the commenter's suggestion to edit §63.168(e)(3) was not adopted; however, guidance material on the standard will include an equation for §63.168(e)(3) to assist with implementation.

5.1.8 §63.169: Pumps, Valves, Connectors, and Agitators in Heavy Liquid Service; Instrumentation Systems; and Pressure Relief Valves in Liquid Service

Comment: One commenter (A-90-19: IV-D-60) requested that the rule be modified to address situations where a potential leak is observed but subsequent monitoring shows repair is not required. The commenter (A-90-19: IV-D-60) expressed concern that the proposed rule did not indicate that remonitoring is not required. The commenter (A-90-19: IV-D-60) suggested that in such cases the equipment should be exempt from remonitoring for 90 days.

Response: The EPA assumes that the remonitoring referred to by the commenter would be the result of the reappearance of drips or other visible signs of seal leakage. Visible leakage from pump seals is generally indicative of seal wear and to prevent major seal failures, the seals should be repaired soon after the leakage is initially detected. If the situation described by the commenter is such that the pump is not repairable, the owner or operator can put the pump on the nonrepairables list and repair it at the next process unit shutdown. In such cases, the pumps would be exempt from remonitoring.

Comment: One commenter (A-90-19: IV-D-69) thought that for all components the rule should provide that if a potential leak is discovered the owner or operator has the option to assume that it is a leak and repair it and not have to monitor to confirm the leak. The commenter thought that it was illogical to provide this provision only for instrumentation systems.

Response: Special provisions were developed for instrumentation systems because of the physical difficulty of monitoring individual components in these systems and the nature of these systems would allow confirmation of successful repair as well as indication of the presence of a leak (such as a change in pressure or flow rate). Other components subject to this rule do not share these characteristics, and there would be no way to confirm that the leak was repaired.

Comment: One commenter (A-90-19: IV-D-60) requested that these provisions not apply to equipment where it can be demonstrated that the equipment would never be considered to be leaking when monitored by Method 21.

Response: The EPA believes that it is appropriate to retain the requirements to repair equipment with indications of leakage and the requirement is not burdensome. In many cases, these indications of potential leaks are indicative of pending major seal failure. Although equipment in heavy liquid service has much lower emission rates than equipment in light liquid or gas service, losses of process fluids to the environment should be minimized because it will ultimately be lost to the atmosphere or could contribute to groundwater contamination.

5.1.9 §63.170: Product Accumulator Vessels

Comment: Several commenters (A-90-19: IV-D-50; IV-D-74; IV-D-77) favored regulating product accumulator vessels under the provisions for process vents in subpart G and indicated that §63.170 should be eliminated.

Response: As discussed extensively in volume 2D of the BID, some of the equipment previously covered by this term is considered to be a process vent. The final standard has eliminated this overlap and the provisions in §63.170 now apply only to surge control vessels and bottoms receivers. These vessels do not meet the definition of a process vent (or a storage vessel) and have intermittent releases only. The

EPA, therefore, concluded that retaining this equipment in subpart H would be consistent with the negotiated agreement.

Comment: One commenter (A-90-19: IV-D-108) argued that by incorporating the negotiated equipment leak rule into the HON, pharmaceutical manufacturers have become subject to a new and different standard for the vent emissions from product accumulators. The commenter (A-90-19: IV-D-108) urged the Agency to regulate these product accumulator vent emissions under the vent standards for the pharmaceutical source category and not subject a source to overlapping or contradictory standards.

Other commenters (A-90-19: IV-D-7; IV-D-39) presented similar arguments that the negotiation did not include point sources such as PAV's and that the negotiations did not address what performance would be achievable for pharmaceutical processes. Another commenter (A-90-19: IV-D-27) thought that it was unnecessary and undesirable to regulate PAV's in the equipment leak rule since these are more appropriately addressed under process vents. This commenter (A-90-19: IV-D-27) also argued that removing PAV's from subpart H would address the inequity which exists for batch processes in the proposed rule.

Response: The EPA believes that several clarifications to the final rule have addressed the commenters' concerns. First, as noted above, the overlap between process vents and equipment included in the proposed definition for PAV's has been eliminated. Of the original items included in the definition of PAV's, subpart H now only establishes requirements for surge control vessels and bottoms receivers. Second, the applicability for the non-SOCMI processes has been separated from that for the SOCMI processes. Subpart I now has the applicability for the non-SOCMI processes and subpart F has the applicability for SOCMI processes. Thus, for sources subject to subparts H and I, there are no control requirements for process vents.

5.1.10 §63.171: Delay of Repair

Comment: One commenter (A-90-19: IV-D-87) argued that the option of using delay of repair should include the examples cited in the proposed standard as well as an evaluation of the potential to cause any adverse effects to human health and the environment.

Response: Provisions for delay of repair have been a feature of the equipment leak standards in 40 CFR parts 60 and 61 since the beginning of the EPA's program. The EPA has provided this extension because it would be counterproductive to establish a requirement that would result in release of more emissions to repair the leaking component than would occur if the component was left unrepaired. The commenter's (A-90-19: IV-D-87) suggestion that the potential for adverse health and environmental impacts also be a criterion for delay of repair is not appropriate for this rule. The residual risk standards to be established under section 112(f) would be more appropriate than this standard. It should also be noted that units that handle the acutely toxic HAP's, such as phosgene, are designed to permit rapid shutdown of the equipment on any indication of a leak and immediate repair.

The EPA believes that the provisions in §63.171 do provide delay of repair for any type of equipment. So, the EPA is not certain what the nature of the commenter's (A-90-19: IV-D-69) concern is.

Comment: One commenter (A-90-20: IV-D-19) recommended expanding the delay of repair provisions to include replacing any seal system with one that is expected to provide better performance. The commenter (A-90-20: IV-D-19) observed that the plant may wish to replace DMS systems or sealless pumps with more efficient systems, and this replacement should also be allowed. The commenter (A-90-20: IV-D-19) also noted that the replacement of single seal systems is generally not <u>required</u> so much as <u>desired</u>. The commenter (A-90-20: IV-D-19) thought that documentation of procedures describing how a replacement was determined to be actually <u>required</u> would be lengthy and burdensome.

<u>Response</u>: The provisions in §63.171(d) were revised to allow delay of repair for systems expected to achieve better performance. This suggestion was considered appropriate and provided delay of repair conditions equivalent to those provided for sources subject to the provisions of §63.176. The EPA would also like to clarify that the necessary documentation for use of this provision is merely that the pump cannot be repaired by normal procedures. While the EPA understands that there may be a number of options available and the owner or operator may elect seal replacement, it would be inappropriate to edit the language as suggested since that could result in feasible repairs not being done.

<u>Comment</u>: One commenter (A-90-19: IV-D-33) recommended revising §63.171(e) to apply to all equipment, not just valves, to recognize that stocks of some of the specialized equipment components may be depleted and not be available on short notice.

<u>Response</u>: The equipment leak provisions have been revised to apply this allowance to connectors. This allowance was not extended to other equipment because the quantity of other types of equipment (i.e., pumps, agitators or compressors) used at a facility is much smaller than the quantity of valves and connectors. Therefore, the possibility of the quantity needed to be stocked being incorrect is remote.

<u>Comment</u>: One commenter (A-90-19: IV-D-33) recommended that delay of repair provisions for pumps [§63.171(d)(2)] not require the repair to be completed within 6 months. The commenter (A-90-19: IV-D-33) argued that the time restriction

could cause problems at plants that have infrequent maintenance shutdowns.

Response: The provisions of §63.171 allow delay of repair for three situations: (1) where a process unit shutdown is required; (2) where the equipment is isolated from HAP service; and (3) where a better performing seal system is going to be installed. The 6-month time limitation only applies in the last case. If repair is technically infeasible without a process unit shutdown, the delay is until the next process unit shutdown, which could be a delay of more than 6 months or less than 6 months depending on operations of the unit. Obviously, if the pump is removed from organic HAP service the delay can be as long as the owner or operator wishes to keep the pump out of organic HAP service. Since there are a number of options available in addition to the delay provided by §63.171(d), the EPA does not believe that the time restriction should be removed. If the time limit on this delay were removed, it is conceivable that someone could use this provision to avoid repairing a leaking pump altogether.

5.1.11 §63.172: Closed-vent Systems and Control Devices

Comment: Several commenters (A-90-19: IV-D-33; IV-D-56; IV-D-73; IV-D-77) (A-90-20: IV-D-19) advised that valves and connectors in closed vent systems should be subject to the same standards as regular valves and connectors, which allow delay of repair until the next process unit shutdown if such repairs cannot be made without a shutdown. One commenter (A-90-19: IV-D-73) declared that the delay of repair provisions in §63.120(f)(2) should be incorporated into §63.172. One commenter (A-90-19: IV-D-77;) also suggested that provisions should be added to allow less frequent monitoring in systems with low percentages of leaking components.

One commenter (A-90-19: IV-D-73) requested that the EPA conduct a comprehensive review of subparts G and H for requirements that could apply to the same equipment if they were part of a common control system. The commenter (A-90-19: IV-D-73) noted that the requirements should be consistent, and contradictions should be eliminated. The commenter (A-90-19: IV-D-73) recommended that the exclusions in subpart G for bleeds, drains, pressure vacuum vents, etc. be incorporated into subpart H. The commenter (A-90-19: IV-D-73) also requested that §63.160(d)(3) include an override of subpart G if delay of repair provisions are applied to closed vent systems. A similar comment was made by another commenter (A-90-19: IV-D-97) who recommended that all the closed vent system provisions be consolidated in subpart H. The commenter (A-90-19: IV-D-97) noted that this change would reduce any confusion over the requirements and would reduce the recordkeeping and reporting costs.

Response: The EPA agrees with the commenters' suggestions that it would be appropriate to have a consistent set of provisions for closed vent systems in the rule. A uniform set of provisions for closed vent systems will benefit both State and Federal enforcement programs and industry by both reducing review time and complexity of record systems. Because subpart G also included requirements for inspections of equipment other than closed vent systems, the closed vent system provisions in subpart G were not consolidated into subpart H. The final rule now has the same requirements for closed vent systems in subparts G and H. The EPA believes that this approach provides the consistency requested by the commenters.

The EPA also reevaluated the provisions requiring annual Method 21 monitoring of closed vent systems. Closed vent systems in chemical plants and refineries are constructed of piping and connections and are operated at low pressures or under vacuum. An assessment of recent data and experience from implementation of existing standards under 40 CFR part 60 and part 61 showed that only rarely are leaking connectors and other equipment identified through the annual Method 21 inspections of closed-vent systems. As discussed in the preamble to the proposed rule (57 FR 62666 and 57 FR 62676), connectors have very low leak frequencies and once leak tight they remain leak tight. Consequently, the final rule only requires an initial Method 21 demonstration that all connections and other equipment in closed vent systems are operated with instrument readings less than 500 ppm and annual inspections for indications of leaks (visual, olfactory, or audible). The EPA believes that this requirement along with the requirement for flow indicators or car seals on by-pass lines that could divert emissions from the control device to the atmosphere will ensure emissions are controlled as required, while also minimizing unproductive effort.

Comment: One commenter (A-90-19: IV-D-75) indicated that the requirements for controlling certain equipment with a closed vent system and a control device results in the equipment being subject to the process vent provisions in subpart G. The commenter (A-90-19: IV-D-75) recommended that the final rule should provide the owner or operator the option of complying with either the requirements in subpart G or those in subpart H.

Response: The EPA suspects that there may be a misunderstanding of the meaning of the term "process vent". A process vent means a gas stream that is continuously discharged during the operation of the unit from an air oxidation reactor, other reactor, or distillation unit within a SOCMI chemical manufacturing process unit. Process vents include vents from distillate receivers and product separators. Process vents include gas streams that are discharged directly to the atmosphere and gas streams discharged to the atmosphere after diversion through a product recovery device. Thus, it is not possible for equipment subject to subpart H to be considered subject to the provisions in subpart G merely because it has been connected to a closed vent system. For something to be subject to the process vent provisions it must meet the definition of a process vent.

Comment: One commenter (A-90-19: IV-D-33) argued that the control device performance should not be evaluated on the basis of all organics routed to it, just HAP control performance.

Response: The provisions in §63.172 were edited to allow the owner or operator to demonstrate the performance based on either organic HAP's or VOC .

5.1.12 §63.173: Agitators in Gas/Vapor Service and in Light Liquid Service

Comment: One commenter (A-90-19: IV-D-56) alleged that the proposed rule expanded the list of equipment subject to the rule by adding agitators and instrumentation systems. The commenter (A-90-19: IV-D-56) opposed this extension because it goes beyond the negotiated agreement without providing reasonable justification.

Response: The Committee developed the provisions for instrumentation systems and agitators. The preamble to the proposed rule describes the factors considered by the Committee and the reasons for including this equipment in the standard (see December 31, 1992, Federal Register [57 FR 62080]). The commenter (A-90-19: IV-D-56) may have misinterpreted discussions comparing the negotiated rule to existing equipment leak standards in 40 CFR parts 60 and 61. Agitators are not subject to the provisions in the earlier standards, and the Committee elected to add this equipment to the scope of the negotiated rule.

Comment: Several commenters (A-90-19: IV-D-73; A-90-20: IV-D-9; IV-D-12)) requested that agitators equipped with double seals be exempt from monitoring, as are pumps. Another commenter (A-90-20: IV-D-19) suggested that exemptions from routine monitoring be provided for better agitator designs and provisions for unsafe to monitor equipment be added.

Response: The final standard for agitators includes provisions for agitators equipped with dual seals and for agitators equipped with a closed vent system. Agitators with no externally actuated shaft are exempt from the monitoring requirements of the standard. Since the commenter (A-90-20: IV-D-19) did not provide examples of situations where monitoring of the agitator would be unsafe, no provisions were added to exempt these situations.

5.1.13 §63.174: Connectors in Gas/Vapor Service and in Light Liquid Service

Comment: One commenter (A-90-19: IV-D-56) requested that the final rule include provisions allowing a facility to make connectors leak-proof by welding them and, therefore, to receive credit in the calculation of percent leaking.

Response: The negotiated rule does provide credit for removing connectors from a process. These provisions are in §63.174(i) of subpart H.

Comment: One commenter (A-90-20: IV-D-19) objected to the proposed requirement in §63.174(b)(4) arguing that the requirement to monitor welds used to reduce the number of connectors in a process unit is unnecessary and requires regulation before applicability. The commenter (A-90-20: IV-D-19) noted that industry practice when welding any type of equipment is to test the weld integrity before placing the equipment back in service. The proposed requirement would not provide for any additional protection to the environment, and would greatly increase the recordkeeping burden of a process unit. In addition, this section requires both testing and recordkeeping before any valid applicability date.

Response: The provisions in proposed §63.174(b)(4) were intended to apply to the optional credit for removed connectors, and not to create an additional recordkeeping burden on sources that did not elect to use the credit. The provision allowed credit back to the date of proposal because at the time of the negotiation some Committee members advocated providing the maximum opportunity to generate credits. As this comment showed it was possible to read the proposed provisions in §63.174(b)(4) as not being voluntary, the EPA redrafted this provision and moved it after the calculation of percent leaking connectors. It is hoped that these editorial changes will make the provision clearer.

Comment: One commenter (A-90-19: IV-D-60) requested that the rule provide the option of calculating percent leaking on a plant-wide basis or a process unit basis. The commenter (A-90-19: IV-D-60) also requested that the rule allow the owner or operator to group process units that are in similar service for calculating percent leaking. The commenter (A-90-19: IV-D-60) thought this would assist in providing meaningful leak rate data.

Response: This comment is addressed under the valve standard.

Comment: One commenter (A-90-19: IV-D-68) argued that the proposed LDAR requirement for connectors should be eliminated from the final rule because the proposed requirement is above the floor for equipment leaks and will result in negligible emission reductions. The commenter (A-90-19: IV-D-68) also argued that this program would require 4,000 to 5,000 man-hours to implement in a process unit with about 50,000 components. Therefore, the commenter (A-90-19: IV-D-68) concluded that this is not a cost-effective approach to emissions reduction. For similar reasons, another commenter (A-90-19: IV-D-77) recommended that only an annual inspection for leaks based on visual, auditory, or olfactory detection should be required for connectors.

Response: The EPA does not agree with the commenter's (A-90-19: IV-D-68) view that a LDAR program for connectors is inappropriate and is not a cost-effective means of emissions reduction. The commenter (A-90-19: IV-D-68) did not provide the basis for the emission estimates used in concluding that the LDAR program for connectors was not cost-effective. The EPA believes that it is important to include process equipment connectors in the LDAR program because emissions from these connectors can be significant. The revised SOCMI average factors show that the factor for connectors is one-half to one-third of the factors for valves in light liquid and gas service. Because of the large number of connectors in process units, connector emissions could easily exceed emissions from valves and pumps. In fact for the number of components reported by the commenter (A-90-19: IV-D-68), the revised SOCMI average factors indicate that connectors contribute roughly 55 percent of total emissions and valves contribute 40 percent. While the average factors may not be indicative of emission rates for the commenter's (A-90-19: IV-D-68) units, they do indicate that on a national basis it is important to consider control measures for connectors. The EPA considers the negotiated rule, as well as the connector LDAR program, to be a cost-effective means of reducing emissions from equipment leaks. Since the standard allows less frequent monitoring for better performing units, the EPA does not believe that the provisions will impose unproductive costs on units that perform better than the average units.

The suggestion that the connector LDAR program be replaced with an annual inspection program for indications of leaks was rejected for the same reason. The EPA believes that the program can be cost-effective. Additionally, it would not be consistent with the negotiated agreement to remove the connector LDAR program without providing an equivalent reduction from other items of equipment. The second commenter (A-90-19: IV-D-77) did not suggest any substitute control measures or provide reasons for the view that emissions were trivial.

Comment: One commenter (A-90-19: IV-D-77) requested that the final rule allow the owner or operator to adopt a reduced monitoring frequency if it can be demonstrated that the source qualifies for this frequency. Another commenter (A-90-20: IV-D-14) suggested that facilities be allowed to implement the less frequent monitoring provisions of §63.174(b) provided that the percent leaking connectors criteria were achieved during the two most recent monitoring periods. Another commenter (A-90-20: IV-D-19) recommended that the EPA should allow an owner or operator to skip to monitoring connectors every four years if the initial monitoring shows greater than 0.5 percent leaks. This commenter (A-90-20: IV-D-19) recommended that the connector standard use a consistent approach to that in the pump and valve standard.

Response: The EPA agrees that the final rule should allow owners or operators the flexibility to adopt lower leak frequency monitoring schedule provided there is documentation that the criteria for the less frequent monitoring have been met. The provisions in §63.174(b) have been revised to clarify this point. This clarification does not, however, allow an owner or operator to elect to use reduced monitoring frequencies without Method 21 data to document achievement of lower leak rates for the required periods. The suggestion by commenter (A-90-20: IV-D-19) that the connector standard allow an owner or operator to elect to meet requirements of a later phase would require restructuring the provisions in the connector standard to specify a lower leak frequency for the quadrennial monitoring frequency.

Comment: One commenter (A-90-19: IV-D-92) suggested that the connector standard incorporate the skipped-period concepts of §60.483-2 of subpart VV. The commenter (A-90-19: IV-D-92) recommended that if the leak rate is less than 2 percent, the facility could skip one monitoring period, for semiannual monitoring. If, after two consecutive monitoring periods, the leak rate is less than 2 percent, the facility could skip three monitoring periods, for annual monitoring.

Response: Although there is merit to consistency with concepts in existing programs, it must be noted that the monitoring frequency and the criteria suggested differ significantly from the levels agreed to by the negotiating committee. For example, the commenter suggested that quarterly monitoring would be appropriate for units exceeding the 2 percent leakage rate. The agreement was for annual monitoring for leak frequencies greater than 0.5 percent and biennial monitoring if less than 0.5 percent. The EPA does not believe that it would be appropriate to add the commenter's suggestion as an optional compliance mechanism.

Comment: A number of commenters (A-90-19: IV-D-33; IV-D-69; IV-D-73; IV-D-77) (A-90-20: IV-D-19) recommended that the definition of "inaccessible connectors" be made the same as the definition of "difficult to monitor" valves. The commenters (A-90-19: IV-D-33; IV-D-69; IV-D-73; IV-D-77) (A-90-20: IV-D-19) expressed concern that the requirement to monitor connectors which can be reached only via a 25-ft portable scaffold presents safety concerns and is not a cost-effective means of reducing emissions. One commenter (A-90-19: IV-D-77) further noted that piping is generally constructed above other equipment and the area is covered with gravel; therefore, rolling scaffolding would not be appropriate. The commenter (A-90-19: IV-D-77) added that, because of flammability concerns, powered vehicles are not allowed in these areas. Therefore, the commenter (A-90-19: IV-D-77) concluded that the only portable scaffolding that could be used is field-erected scaffolding. The commenter (A-90-19: IV-D-77) estimated that the cost-effectiveness of emission reduction achieved if the percent leaking was 0.5 percent would be $2.7 million/ton.

Similar comments were made by one commenter (A-90-20: IV-D-10), who was a member of the committee. This commenter (A-90-20: IV-D-10) indicated that the type of portable scaffolding envisioned was a wheeled scissor lift platform that would sit on the ground below the monitoring or repair location. The commenter (A-90-20: IV-D-10) reported that the issue of stable ground was discussed and it was understood that the scaffolding would not be used on grassed or unstable stone covered areas below pipelines. The commenter (A-90-20: IV-D-10) also noted that raising an individual vertically is not the only safety issue when trying to reach an inaccessible connector. Other safety issues include: (1) danger of damaging electrical cables and piping; (2) limitations on access due to curbs and process equipment spacing; and (3) dangers of fire and explosions in some process areas. This commenter (A-90-20: IV-D-10) requested clarification of the term portable scaffold and that issues of safe access be addressed.

<u>Response</u>: The EPA agrees with the commenter (A-90-20: IV-D-10) that the committee discussions were clear that implementation of the monitoring provisions was not to endanger maintenance or monitoring personnel's lives. The committee specifically discussed and agreed that use of scissor lifts on gravel or grass was not intended as well as use of gas-powered cherry pickers or non-rated electrical motors in areas with an explosion hazard.

The EPA believes that these concerns expressed by the other commenters (A-90-19: IV-D-33; IV-D-69; IV-D-73; IV-D-77) (A-90-20: IV-D-19) are addressed by the provisions in §63.174(h)(1). This paragraph has been expanded to include additional situations where connectors are considered to be "inaccessible connectors," such as elevating monitoring personnel two or more meters above a support surface, or erecting a scaffold.

The commenters' (A-90-19: IV-D-33; IV-D-69; IV-D-73; IV-D-77) (A-90-20: IV-D-19) suggestion that the definition of "inaccessible" be made the same as "difficult to monitor valves" is not consistent with the committee's desire to have connectors monitored where it can be safely conducted. Revising the definition to be consistent with the "difficult to monitor valve" definition would not be consistent with the intent of the negotiated standard since there are situations where a wheeled scissor lift, platform, or hydraulic scaffolding could be used on a paved area within a unit.

Comment: One commenter (A-90-20: IV-D-19) thought that the EPA should allow switching between connector monitoring alternatives in §63.174(c)(1)(i) and 63.174(c)(1)(ii) without the penalty of more frequent monitoring.

Response: The two connector monitoring options were provided to address concerns of some committee members constituents about the recordkeeping burden of the follow-up monitoring in §63.174(c)(1)(i). Since the purpose of the follow-up monitoring, at least in part, is to establish the nonrepairable pool, an alternative provision was provided for those companies willing to forego the nonrepairable pool in exchange for less burdensome administrative costs.
Section 63.174(c)(1)(ii) allows an owner or operator to treat disturbed connectors like any other connector in the unit for the purposes of monitoring in exchange for setting the nonrepairables pool to zero. The committee also agreed to

allow an owner or operator to switch among alternatives provided the new alternative is started with an annual program. This restriction was included to prevent an owner or operator selecting the alternative most favorable to him during that particular monitoring cycle. Commenter's (A-90-20: IV-D-19) suggestion to remove the penalty of more frequent monitoring is not appropriate.

Comment: One commenter (A-90-19: IV-D-89) recommended that a section for difficult-to-monitor connectors should be added to §63.174. The commenter (A-90-19: IV-D-89) asserted that it is not uncommon to have connectors positioned in such a manner that elevation of monitoring personnel more than 2 meters above a support surface would be required.

Response: Difficult-to-monitor valves require monitoring as often as possible and at least annually. The commenter's concerns are addressed by the provisions for inaccessible connectors in §63.174(h) which exempt connectors that are greater than 2 meters above a support surface and that cannot be reached using portable scaffolding.

Comment: One commenter (A-90-20: IV-D-19) suggested that unsafe-to-monitor, unsafe-to-repair and inaccessible connectors should be excluded from the percent leaking connectors calculation. The commenter (A-90-20: IV-D-19) expressed concerns that because of the infrequent monitoring performed on these connectors, unsafe-to-monitor and unsafe-to-repair connectors results could be very skewed in one direction or another, giving an unrealistic picture of the remaining connectors in the process unit. These connectors should be excluded from both the number of leaking connectors (C_L) and total connectors (C_T) terms. Additionally, since inaccessible connectors are exempt from monitoring, they should be explicitly exempt from the percent leaking connector calculation as well.

Response: The EPA does not think that the commenter's (A-90-20: IV-D-19) suggested clarifications are necessary in some cases or appropriate in other cases. First, as the commenter noted, inaccessible connectors are exempted from monitoring. Therefore, it is not possible that there would ever be an instance when they are monitored and could be included in the calculation of percent leaking. The EPA does not understand the need for an explicit statement to that effect. Second, unsafe to monitor connectors are only monitored during periods in which monitoring can be safely conducted and there is no specified frequency for this monitoring. Given the large number of connectors associated with typical SOCMI process units, it is hard to envision a situation where monitoring of the unsafe-to-monitor connectors could significantly affect the calculation of percent leaking connectors. Third, unsafe-to-repair connectors are a subset of the nonrepairable connectors and to delete these from the calculation of percent leaking could allow a unit to exclude more than the allotted number of nonrepairables. It would not be appropriate to exclude them as suggested by the commenter.

5.1.14 §63.175: Quality Improvement Program for Valves

Comment: Several commenters (A-90-19: IV-D-33; IV-D-73) (A-90-20: IV-D-19) suggested that the QIP option should be available on an as-needed basis or within a fixed time period after the process units percent leaking valves equals or exceeds 2 percent. The commenter (A-90-19: IV-D-73) argued that such an approach is appropriate because the need for this option may not be apparent within the first year of phase III.

Response: The committee restricted the availability of this QIP due to concerns that it could be used to delay improving performance. Some committee members were concerned that the QIP would never result in improved performance because the QIP allows the owner or operator to continue quarterly monitoring and provides 2 years to gather data and identify better performing equipment. It was also thought that the need for the program would be apparent by the first year of phase III and that sources should have improvements in performance as experience is gained with the program. As an owner or operator may elect to use the QIP during the first year of phase III regardless of whether the process unit has 2 percent or more leaking valves, every owner or operator of a source has an opportunity to elect the program. The provisions in §63.175(c) also allow an owner or operator to continue a QIP program after the process unit has fewer than 2 percent leaking valves.

The EPA would like to recommend that owners or operators of sources consider developing their own quality assurance/quality control program that could be used to avoid election of the formal program in §63.175. The EPA believes that a quality control program that is outside the scope of the provisions in subpart H would have lower recordkeeping costs and be more flexible to the needs of the facility.

Comment: One commenter (A-90-20: IV-D-19) thought that the number of valves in the trial evaluation program of a QIP should be clarified to include only those valves needing replacing. Section 63.175(e)(6)(ii) should include only those valves that have higher leak rates and need to be replaced. There would be no need to evaluate or replace valves that work; only those that are inadequate and need replacing.

Response: The EPA would like to make clear that the purpose of the trial evaluation program is to evaluate the feasibility of using in the process unit subject to the QIP those valve designs or technologies that others have identified as having low emission performance. The requirement to evaluate the lesser of 1 percent or 20 valves for single process units (or 1 percent or 50 valves for groups of process units) is not excessive. The trial evaluation program is not directed towards valve replacement, but towards determining the feasibility of application of other technologies in the specific process unit.

Comment: One commenter (A-90-20: IV-D-19) argued that contractors should not be included in the calculation of the total number of employees at a facility. The commenter (A-90-20: IV-D-19) reasoned that contractor personnel are temporary, and their number at any given time is variable. The commenter noted that it is unlikely that a facility would use contract personnel to get below the cutoff for trial evaluation--the benefits of this are too small. The commenter also argued that the determination should refer to the number of employees at the facility site, not the entire corporation.

Response: The intent of this provision was to reduce the impact of the requirement on small businesses within this industry. Since use of this provision would be easier on small businesses if it was not necessary to document the number of temporary contract personnel on site, the requirement to consider contract personnel was removed. The commenter's suggestion that the number of employees be specified on a facility site basis is not consistent with the intent to provide some relief for small businesses. This suggested edit was not made.

Comment: One commenter (A-90-20: IV-D-19) argued that the EPA should not require facilities to positively identify superior performing equipment technologies within 24 months of the start of the QIP. This requirement inaccurately assumes that such a technology can be identified in the first trial evaluation. The commenter (A-90-20: IV-D-19) observed that this requirement is not consistent with the concept that performance trials may need to continue for some time. The commenter (A-90-20: IV-D-19) requested that the EPA remove this inconsistency.

Response: The intent of this requirement is for the owner or operator to begin trial evaluations of the technologies that had been identified and not to wait for the perfect solution. The provisions of §63.175(e)(6)(iv) require that the evaluations begin no later than 18 months after the start of Phase III and be conducted for a minimum of 6 months. It should be noted that the trial evaluation program is only required for sites that failed to identify superior performing technologies during the data analysis phase of the QIP.

5.1.15 §63.176: Quality Improvement Program for Pumps

Comment: One commenter (A-90-20: IV-D-19) thought that the number of pumps in the trial evaluation program of a QIP should be clarified to include only those that need replacing. Section 63.175(e)(6)(ii) should include only those pumps that have higher leak rates and need to be replaced. There would be no need to evaluate or replace pumps that work; only those that are inadequate need replacing.

Response: The EPA would like to make clear that the purpose of the trial evaluation program is to evaluate the feasibility of using in the process unit subject to the QIP those pump seal designs or technologies that others have identified as having low emission performance. The requirement to evaluate the lesser of 1 percent or 2 pumps for single process units (or 1 percent or 5 pumps for groups of process units) is not excessive. The trial evaluation program is not directed towards pump replacement, but towards determining the feasibility of application of other technologies in the specific process unit.

5.1.16 §63.177: Alternative Means of Emission Limitation

Comment: One commenter (A-90-19: IV-D-56) urged the EPA to expand these provisions so that they will apply to all sections of the rule. The commenter (A-90-19: IV-D-56) noted that by providing alternative compliance options for design, equipment standards, and work practices, operational flexibility will be enhanced.

Response: The EPA believes that the provisions in §63.6(g) of the general provisions and the provisions in this section already provide the flexibility the commenter is requesting. Since the commenter did not provide specific details explaining the unfilled need, it is not possible for the EPA to address the commenter's concern.

Comment: One commenter (A-90-20: IV-D-19) requested that the EPA clarify §63.177 to allow use of an alternative means of emission limitation before the EPA has approved or disapproved the alternative. The commenter (A-90-20: IV-D-19) recommended this change be made to provide consistency with the Benzene Waste NESHAP (40 CFR part 61, subpart FF).

Response: The EPA does not believe that it is necessary to add language to §63.177 that will allow owners or operators at their own risk to install and operate alternative control measures, pending approval by the Administrator. Addition of such language does not provide owners and operators with any rights that they did not otherwise have. As discussed in the January 7, 1993 FEDERAL REGISTER clarifying amendments to the Benzene Waste NESHAP (58 FR 3072), if the owner choices to install or implement an alternative means of emission limitation prior to approval and it is determined that the measure does not achieve the emission limitation, the owner may be cited for noncompliance with the applicable requirement.

5.1.17 §63.178: Alternative Means of Emission Limitation for Batch Processes

Comment: Two commenters (A-90-20: IV-D-20; IV-D-27) recommended modification of these provisions to allow vacuum as well as pressure testing. One commenter (A-90-20: IV-D-20) stated that in some cases vacuum testing will be easier because it can be done as part of the inerting operation prior to beginning the batch operation. The other commenter (A-90-20: IV-D-27) reported that vacuum testing can be accomplished on some systems without adding equipment.

Response: The EPA would like to clarify that the provisions of subpart H do not apply to equipment in vacuum service. If a process is operated under a vacuum, there is no potential for loss of process fluids to the atmosphere through seal failures in equipment such as valves. The EPA agrees that vacuum testing for pressure rise should be allowed. The provisions in §63.178(b) and §63.180(f) have been revised to include vacuum testing.

Comment: Two commenters (A-90-20: IV-D-6; IV-D-27) stated that a literal interpretation of the proposed §63.178(b)(1) would require pressure testing each time a seal is broken during production of the same intermediate or product and even during a process run. One commenter (A-90-20: IV-D-6) asserted that batch processes in the pharmaceutical industry, in general, do not have dedicated batch product trains. The commenter (A-90-20: IV-D-6) added that most process trains are set up to receive feed through a manifold system which necessitates quick hose connection and disconnection in order to allow receipt of varying feed material as the process dictates. The commenter (A-90-20: IV-D-6) requested confirmation that the intent of the provisions in §63.178(b)(1) is to require pressure testing only when the equipment is reconfigured to produce a different product or intermediate. One of the two commenters (A-90-20: IV-D-27) suggested specific language for clarification of the rule.

Response: The intent with these provisions was to require pressure-testing each time the equipment was reconfigured for production of another product or intermediate. Pressure testing of routine seal breaks, which are not part of reconfiguration to produce a different product, was not envisioned. If the committee had intended

pressure-testing of routine seal breaks the language in §63.178(b)(1) would not have required pressure testing "before organic HAP is first fed to the equipment". Additionally, the last sentence of §63.178(b)(1), which provides that there shall be a minimum of one test per year, would not have been considered necessary if the committee had envisioned routine seal breaks as being subject to pressure testing.
Section 63.178(b)(1) has been revised to clarify that pressure testing is not required for routine seal breaks.

Comment: One commenter (A-90-20: IV-D-19) asserted that the repair requirements for batch processes failing a pressure test are not realistic for those process units that contain material during the test. The commenter (A-90-20: IV-D-19) reported that batch equipment can sometimes be reconfigured for different products without disturbing all of the equipment or draining the process lines. The commenter (A-90-20: IV-D-19) suggested that the language in §63.178(b)(4) revised to refer to startup of the process or the second failure.

Response: Because the pressure testing requirement is for new or disturbed equipment the committee language was drafted assuming that the new equipment would not be in HAP service at the time of the first test. The committee thought that if the reconfigured equipment leaked the problem should be addressed before the equipment is put into service. During the committee discussions it was not envisioned that this restriction could be interpreted as applying to other equipment in the portion of the equipment train that was not tested. Since there could be ambiguity regarding the requirement, the provisions in §63.178(b)(4) have been revised to clarify the intent.

Comment: A commenter (A-90-20: IV-D-27) requested clarification that the proposed pressure testing procedure is a minimum requirement, and that equivalent or more rigorous testing should also be acceptable. The commenter (A-90-20:

IV-D-27) specifically suggested that testing over a shorter test period but at a higher test pressure should also be permitted.

Response: The provisions have been edited to allow owners or operators the option to conduct the test as specified at proposal or show that the applicable FDA test has been conducted.

Comment: One commenter (A-90-19: IV-D-86) supported the alternative provisions for batch processes in §63.178. The commenter (A-90-19: IV-D-86) endorsed these provisions because they provide a means of complying without the onerous recordkeeping requirements of §63.181.

Response: While the EPA appreciates the commenters support, the EPA would like to make clear that there are recordkeeping requirements associated with §63.178. These requirements are located in §63.181(e) of the final subpart H. Owners or operators of batch processes that comply using the pressure testing provisions of §63.178(b) are also required to submit the reports specified in §63.182.

Comment: One commenter (A-90-20: IV-D-19) suggested that batch processes that use the pressure testing provisions of §63.178(b) should be exempt from the requirement for annual monitoring of the closed vent system. The commenter (A-90-20: IV-D-19) thought that it should be possible to test these systems during the pressure test of the batch equipment and monitoring of the closed vent system would be of no benefit.

Response: The provisions for closed vent systems were revised in response to comment and in light of data on the leak frequency of equipment in these systems. Since the final provisions of §63.172 do not require an annual monitoring of closed vent systems, it is not necessary to provide an exemption for batch equipment that pressure test the system. See section 5.1.11 of this document for detailed discussion.

Comment: One commenter (A-90-20: IV-D-19) thought that the alternative standard for batch provisions should state that it is permissible for an owner or operator to switch among the alternatives in paragraphs (b) and (c).

Response: As drafted in the proposed standard there is no restriction on the use of alternatives. However, due to the fundamental differences between the two alternatives, switching among the alternatives does not appear to provide significant advantages to the source owner or operator. Since the committee did not discuss restricting the ability to switch among the alternative, language has been added to §63.178(b) to permit that.

5.1.18 §63.179: Alternative Means of Emission Limitation for Enclosed-Vented Process Units

Comment: Two commenters (A-90-19: IV-D-26) (A-90-20: IV-D-19) argued that if the equipment is enclosed and vented as specified, it should be exempt from all monitoring requirements in the regulation, as well as the requirements for visual inspections and equipment standards.

Response: The language in §63.179 was drafted to exclude these units from the monitoring and visual inspection requirements. Since these process units must be contained in a structure operated under a vacuum and vented to a control device, the EPA agrees that exemption from the equipment standards would be appropriate. The language in §63.179 has been revised to exempt enclosed vented units from the requirements of §§63.173 through 63.178. Owners and operators electing to use this provision are still subject to the recordkeeping and reporting requirements of §63.181 and §63.182.

Comment: One commenter (A-90-19: IV-D-86) recommended that enclosed equipment vented to a control device should be exempted from the monitoring requirements applied to the equipment.

Response: The EPA believes the standard provides this as an option for compliance for equipment where this option is a realistic alternative. Since the commenter did not specify the type of equipment for which this alternative was desired, the EPA has no way of determining if changes are necessary or appropriate.

5.1.19 Repair Procedures

Comment: Two commenters (A-90-19: IV-D-33) (A-90-20: IV-D-4) recommended that the proposed repair intervals (i.e., first attempt at repair within 5 calendar days and repair within 15 calendar days) be expressed in terms of working days in order to facilitate scheduling and reduce overtime operating costs. These commenters (A-90-19: IV-D-33) (A-90-20: IV-D-4) noted that at some facilities maintenance staff does not work 24-hour shifts and some facilities only operate on a 5-day work week. The commenters (A-90-19: IV-D-33) (A-90-20: IV-D-4) indicated that their suggestion would reduce the burden of the rule on facilities, particularly small facilities. One commenter (A-90-19: IV-D-33) also expressed the opinion that the definition of "days" in the General Provisions for part 63 would override any definitions of days provided in subpart H. Therefore, the commenter (A-90-19: IV-D-33) requested that the final rule explicitly state each place where the term "working days" can be used.

Response: The two commenters are in effect requesting a longer repair interval. The length of the repair interval affects the emission reduction potential of the LDAR program. As discussed in the preamble to the proposed standard, the first attempt at repair is required as soon as practicable and no later than 5 days. Based on experience with the existing equipment leak standards, the EPA believes that 5 days should be sufficient time to schedule simple field repairs that do not require isolation of the equipment from the process. The standard also provides a 15 day interval for repair of equipment such as valves that do require isolation from the process. Since the committee did discuss the question of repair interval and retained the 5 calendar day/15 calendar day approach of the existing standards, it would not be appropriate to revise this as suggested.

The EPA would like to make clear the relationship between the General Provisions to part 63 (subpart A) and subpart H. Section 63.1(a)(1) of subpart A provides that individual subparts may include specific definitions in addition to those in subpart A as well as override definitions in subpart A. Thus, subpart H could define day to mean working day if that were appropriate for the provisions in subpart H. As discussed above, however, the EPA does not agree that it is appropriate to use working day in subpart H.

Comment: One commenter (A-90-19: IV-D-92) stated that there would be a serious problem if repair of leaks within 5 days was required. The commenter (A-90-19: IV-D-92) recommended that 15 days be allowed for repair.

Response: Subpart H specifies that a first attempt at repair must be made within 5 days and repair must be completed within 15 days. These requirements are consistent with those in the existing standards for equipment leaks - e.g., SOCMI equipment leaks NSPS in subpart VV of 40 CFR part 60 and Benzene equipment leaks NESHAP in subpart J of 40 CFR part 61.

Comment: One commenter (A-90-20: IV-D-4) noted that minor differences among similar standards results in confusion about the requirements and increases training and other implementation costs. The commenter (A-90-20: IV-D-4) suggested that the EPA establish consistent inspection procedures among the rules.

Response: The EPA believes that consistent procedures are used among the standards. These procedures are provided in Method 21 of appendix A to part 60.

5.2 IMPACTS ANALYSIS

Comments regarding national impacts are in chapter 7.0 of BID volume 2D.

5.3 APPLICABILITY

5.3.1 Definition of SOCMI

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-34) noted that the list of SOCMI processes in subpart H differs from the list in subpart F. These commenters (A-90-19: IV-D-32; IV-D-33; IV-D-34) requested that the EPA make the two lists consistent. One commenter (A-90-19: IV-D-33) noted that the differences between the lists are principally due to glycol ethers (which are not listed in subpart H) and the listing of several non-SOCMI products. The commenter (A-90-19: IV-D-33) estimated that there are about 29 SOCMI chemicals that are on one of the two lists (14 additional chemicals on the SOCMI list in subpart F and 15 chemicals on the list in subpart H). This commenter (A-90-19: IV-D-33) also stated that there are 7 non-SOCMI chemical products on the list in subpart F and 13 on the list in subpart H. This commenter (A-90-19: IV-D-33) recommended that in order to ease implementation, there should only be one SOCMI product list, and that list should be provided in subpart F so that subpart F would specify the applicability of both subparts G and H for SOCMI processes.

Response: The EPA agrees with the commenters and the final rule has the corrected combined list in section 63.106 of subpart F. The final SOCMI chemical list consists of 386 products. See memorandum *"Changes to the List of SOCMI Chemicals in the HON,"* from Julie Anne Probert, Radian Corporation, to Janet S. Meyer, EPA/SDB, February 4, 1994 for a discussion of the specific revisions to the chemical list.

Comment: One commenter (A-90-19: IV-D-33) submitted corrections to the CAS numbers for five compounds listed in

§63.184 and noted there are duplications of some compounds through use of synonyms for several compounds.

Response: As a result of this comment, the CAS numbers were corrected and duplicate listings were removed. These corrections are discussed in the memorandum *"Changes to the List of SOCMI Chemicals in the HON,"* from Julie Anne Probert, Radian Corporation, to Janet S. Meyer, EPA/SDB, February 4, 1994.

Comment: Several commenters (A-90-19: IV-D-34; IV-D-77; IV-D-97) suggested that various aspects of the applicability determinations in subparts F and H be made identical. Several commenters (A-90-19: IV-D-34; IV-D-77) (A-90-20: IV-D-19) recommended that subpart H be modified to define applicability on the primary product basis used in subpart F. These commenters (A-90-19: IV-D-34; IV-D-77) (A-90-20: IV-D-19) thought the language in subpart F is much more definitive than the language in subpart H. Another commenter (A-90-19: IV-D-97) recommended that subpart H refer to subpart F applicability and the specific applicability section in subpart H be deleted.

Response: As discussed in BID volume 2D, the applicability for SOCMI is now defined in subpart F. All specification of applicability has been removed from subpart H.

5.3.2 Definition of Non-SOCMI Processes

Comment: Several commenters (A-90-19: IV-D-33; IV-D-71; IV-D-77; IV-D-86; IV-D-97) argued the seven non-SOCMI processes should be regulated separately from the SOCMI processes. The commenters (A-90-19: IV-D-33; IV-D-71; IV-D-77; IV-D-86; IV-D-97) argued that covering the non-SOCMI categories in more than one section 112(d) standard would result in potentially overlapping regulations, which would increase the burden to the regulated industry and create confusion for regulatory agencies. One commenter (A-90-19:

IV-D-77) suggested that, at the very least, the EPA should move the non-SOCMI applicability requirements to the subpart reserved for these source categories.

Another commenter (A-90-19: IV-D-34) argued that regulation of the non-SOCMI categories should be deferred until rules for the other emission points in these categories are issued. The commenter (A-90-19: IV-D-34) thought that this would avoid piecemeal regulation of the non-SOCMI categories.

Response: The EPA agrees with the commenters' suggestions for reorganization of the regulatory provisions into separate subparts. The applicability provisions for the non-SOCMI processes have been placed in subpart I. Subpart I refers to subpart H for the substantive requirements. Subpart I also contains revised definitions for some of the non-SOCMI processes. The definitions were revised to specifically identify the intended processes and to directly correspond to the categories listed in the source category list (57 FR 31576). The EPA expects that these changes will minimize the possibility for confusion and development of overlapping regulations. The EPA does not agree with the suggestion to defer the applicability of the equipment leak standard to the non-SOCMI processes until requirements for the other emission points are issued. This change suggested by the commenters is not consistent with the spirit of the negotiated agreement.

Comment: One commenter (A-90-19: IV-D-77) recommended that the final rule should include appropriate criteria for determining applicability for the non-SOCMI categories. The commenter (A-90-19: IV-D-77) asserted that the criteria used for SOCMI processes are not well suited to specialty, intermediate, or pharmaceutical processes where the intended product can be a relatively minor portion of the total mass output. In other cases, the commenter (A-90-19: IV-D-77) agreed that the SOCMI criteria were appropriate.

Response: The EPA agrees with the commenter that in the case of several of the non-SOCMI categories the criteria for the SOCMI processes are not appropriate. The applicability for the non-SOCMI processes is now specified in subpart I. Thus, there should no longer be any implication that the criteria used for SOCMI apply to these processes.

Comment: One commenter (A-90-19: IV-D-92) requested clarification of the definitions of "miscellaneous butadiene use" and "chlorinated hydrocarbon use." The commenter (A-90-19: IV-D-92) stressed that the definitions implied production.

Response: The EPA agrees with the commenter. Because the processes grouped under these terms used these chemicals to produce other chemicals, the definitions have been revised to more specifically identify these processes.

Comment: One commenter (A-90-19: IV-D-26) argued that the proposed definition of "pesticide production" defines a source category that is broader than any category in the agricultural chemical production industry grouping identified in the List of Source Categories (57 FR 31576), or in the Schedule for Promulgation of Emission Standards (57 FR 44147). The commenter (A-90-19: IV-D-26) noted that only five of the source categories listed in 57 FR 31576 or 57 FR 44147 were identified as being specifically regulated by the HON equipment leak standard. The commenter (A-90-19: IV-D-26) reasoned that the proposed definition would include processes that are not producing one of the listed agricultural chemical products identified as a source category under §112(c) of the Act. The commenter (A-90-19: IV-D-26) noted that if the EPA wants to update the source category list, then the EPA must comply with statutory requirements to include only categories of major sources and area sources where a finding of adverse health effects has been made. The commenter (A-90-19: IV-D-26) recommended that the definition of pesticide production in subpart H be modified to regulate equipment leaks only from the production of Captafol, Captan, Chlorothalonil, Dacthal™, and Tordon™. Another comment (A-90-19: IV-D-111) questioned whether formulation of pesticide products was subject to the negotiated rule.

Response: The definition for pesticide production in proposed subpart H was developed in the regulatory negotiation before creation of the source category list. The source category list and schedule (57 FR 31576 and 57 FR 44147) identifies the pesticide production processes that the EPA had information on at the time of the negotiations on the equipment leak standard. Therefore, subpart H is being applied only to the five production processes identified in the source category list (production of Captafol, Captan, Chlorothalonil, Dacthal™, and Tordon™). As the EPA obtains information on other pesticide processes, these processes will be added to the source category list in the future and standards will be developed for these categories. During these separate rulemakings the EPA will consider what the appropriate control requirements should be for the new source categories. It should not be assumed that the provisions of subpart H will be automatically applied to these categories.

The EPA would like to emphasize that the pesticide processes subject to the negotiated rule are producers of the active pesticide ingredient, and not formulators.

Comment: One commenter (A-90-19: IV-D-111) requested that a definition of "processing aid" be added to subpart H.

Response: The term "processing aid" is not used in the final subparts F, H, or I. Therefore a definition was not necessary.

Comment: One commenter (A-90-19: IV-D-71) suggested that if it is the EPA's intent that subpart H regulate fugitive emissions from all organic operations, then the list of processes must be expanded and the EPA must provide an additional opportunity for public comment.

Response: It is not the EPA's intent that subpart H regulate all organic operations. Subpart H is intended only to regulate listed items. The inclusion of the seven non-SOCMI processes was a product of the regulatory negotiation process.

5.3.3 Equipment Subject to Subpart H

Comment: One commenter (A-90-19: IV-D-92) argued that subpart H should only apply to equipment in greater than 10 percent VHAP service. The commenter (A-90-19: IV-D-92) indicated that such a change would limit the program to volatile organic materials, thereby eliminating inorganic and low-volatility substances such as polynuclear aromatic compounds.

Response: The commenter provided no supporting arguments regarding why the applicability level should be increased from 5 percent to 10 percent. The applicability level of 5 percent total VHAP was selected as part of the negotiation process. Because the list of chemicals being regulated in the rule does not include inorganic compounds, the rule does not apply to them.

Comment: One commenter (A-90-20: IV-D-27) supported the EPA's distinction between process and utility lines (57 FR 62660) and recommended that subpart H include language that explicitly exempts utilities and non-process lines. The commenter supported this distinction because heat transfer lines may include ethylene glycol and other VHAP's but typically will be impossible to monitor because of insulation.

Response: The EPA believes that explicit exemption of nonprocess lines and utilities should not be necessary. First, applicability of the standard is clearly centered around process operations. Second, even if there were confusion regarding the first point, there would be no effect because insulated equipment is exempt from the monitoring requirement.

5.3.4 Miscellaneous

Comment: One commenter (A-90-19: IV-D-26) recommended that the language in §63.100(b)(2) be amended to clarify that the rule only applies to major sources. The commenter (A-90-19: IV-D-26) noted that the EPA had not made a finding of adverse health effects for any of the categories identified in the December 31, 1992 proposal. Thus, without the clarification that this rule applies only to major sources, the proposed rule far exceeds the statutory authority provided to the EPA under the Act.

Response: The standard applies to major sources only which is clearly stated in the final rule §63.100(b)(3) of subpart F. As indicated in the preamble to the proposed rule, the EPA did not have information on area sources in SOCMI and lacked the basis for making a finding of adverse health effects.

Comment: One commenter (A-90-19: IV-D-77) requested that the final rule provide some consideration of operating schedule for flexible operation units. The commenter (A-90-19: IV-D-77) noted that in some cases, the specified monitoring frequency is greater than the frequency of product changes within the chemical manufacturing process.

Response: The EPA believes that the commenter's concern has been addressed through two sets of changes made in the final rule. One of the two changes is to the applicability provisions for flexible operation units. The other change is a clarification of the monitoring requirements in subpart H.

First, in developing the final rule, the EPA reevaluated the proposed approach that a flexible operation unit would be subject only during those times the unit was producing a chemical listed in subpart F. Based on public comments and possible interaction with provisions of 112(g), the EPA decided that the proposed approach would complicate compliance demonstrations for sources and enforcement agencies. The final rule requires flexible operations be assigned to a specific chemical manufacturing process based on anticipated use of the unit. For existing sources, the assignment is to be based on the expected use over the first five years following promulgation of the standard. For new sources, the assignment is to be based on the expected use in the first five years after initial startup.

Second, §63.180 of subpart H now specifies that monitoring can be performed under several different conditions. These conditions are when the equipment is: (1) in organic HAP service; (2) in use with an acceptable surrogate VOC which is not an organic HAP; or (3) in use with any other detectable gas or vapor.

Comment: One commenter (A-90-19: IV-K-80), who operates a pharmaceutical process that would be subject to subpart H, requested that the EPA allow compliance extensions for process changes to eliminate use of HAP's. The commenter (A-90-19: IV-K-80) plans to startup the new process about 3 months after they would have to comply with the monitoring requirements in subpart H.

Response: During the negotiations, there was no discussion of possibility of process changes to eliminate use of HAP's and how that should be considered in terms of compliance schedule. The regulations provide up to 3 years to install controls for other types of emission points, e.g. process vents. Three years were not given to equipment leak sources because there is no large capital expenditure; implementation of the rule consists primarily of labor costs. However, an analogous situation to installation of controls with regard to equipment leaks would be a process change that would eliminate the HAP's of concern that would cause a source to be subject to the HON. Such changes can typically involve significant reworking of equipment, e.g., reconfiguration, replacement, addition, or removal of equipment. Process changes take more time than a few months to effect, especially considering planning, approval of permits, and in some cases approval by the Food and Drug Administration or other government entities.

In at least one situation, the Agency is aware of a pharmaceutical source making such a process change that would be subject to the HON for only a few months, until the change has been completed. The cost associated with monitoring and recordkeeping for the short amount of time the HON would apply has been estimated by the company to be about $100,000. This estimate is probably not unreasonable, but even if it were less, the Agency believes requiring a company to meet a standard for about 3 months (the length of time the company estimated that it would be subject to the HON prior to eliminating the HAP of concern), and incur the associated costs, is not warranted. It would not be fair to penalize a company that will be eliminating HAP emissions subject to the HON, if allowing a little more time to make the change is necessary.

In order to provide comparable time for a source to complete a process change, the Agency will allow that source up to 18 months after promulgation. This is a reasonable amount of time, as opposed to 3 years, given that sources that would have been subject to the equipment leak rules had an earlier opportunity to view the draft rules (56 FR 9315; March 6, 1991). Eighteen months is also the same schedule that the last group of process units become subject to the rules, in effect moving those units undergoing a process change to the last group.

This extension would be conditional upon the source successfully making the process change prior to (18 months after promulgation). This would be necessary so that a source could not claim it was making a change, and then not do so, only to gain an advantage over competitors by delaying the cost associated with the rule. A source would have no more than 18 months after promulgation of the HON to complete the process change. If, after 18 months, the source is still subject to the HON, it would be retroactively subject to penalties for the time during the extension that it did not comply with the HON.

The source would still have to file an initial report with the EPA, describing the process change, the HAP's eliminated, and the expected date of cessation of operation of the current process.

5.4 COMPLIANCE DEMONSTRATIONS

5.4.1 Monitoring

Comment: Several commenters (A-90-19: IV-D-14; IV-D-15; IV-D-17; IV-D-18; IV-D-19; IV-D-20; IV-D-23; IV-D-24; IV-D-25; IV-D-27; IV-D-28; IV-D-40; IV-D-42) suggested that §63.180(b)(4) be modified to allow the use of the calibration gas best suited to the detector technology in use. These commenters (A-90-19: IV-D-14; IV-D-15; IV-D-17; IV-D-18; IV-D-19; IV-D-20; IV-D-23; IV-D-24; IV-D-25; IV-D-27; IV-D-28) contended that the requirement to use methane as the calibration gas precluded the use of photoionization detectors for measuring total volatile organics. Furthermore, the commenters (A-90-19: IV-D-14; IV-D-15; IV-D-17; IV-D-18; IV-D-19; IV-D-20; IV-D-23; IV-D-24; IV-D-25; IV-D-27; IV-D-28) indicated that the specification of methane was contradictory because the rule requires adjustment for response factors greater than 3.

Response: Method 21 has not been revised. Methane is specified as the calibration gas to identify methane as the sole reference gas for determining the response factors. If the leak detection instrument to be used has a poor response or no response to methane, then section 3.1.2 of Method 21 can still be cited as a valid justification for choosing a different calibration gas. If a calibration gas other than methane is used, then instrument readings must be converted to a methane basis, as specified in section 3.2 of Method 21. This conversion factor would be the ratio of the molecular weight of the calibration gas to the molecular weight of methane.

Comment: One commenter (A-90-20: IV-D-19) argued that the requirement in §63.180(b)(4)(i) for 0.2 ppm zero air will increase the cost of compliance without any benefit. The commenter (A-90-20: IV-D-19) recommended that the specifications of Method 21 for zero air be used instead.

Response: The final standard uses the same definition of zero air as Method 21, 10 ppm. This requirement is better suited to the intent of the requirement for leak detection. The proposed requirement of 0.2 ppm reflected an earlier committee concern with obtaining better data for bagging studies.

Comment: Two commenters (A-90-19: IV-D-77) (A-90-20: IV-D-19) requested that the final rule allow background subtraction for leak determinations, where leaks are defined as 500 ppm by Method 21. Failure to allow subtraction of background makes the standard more stringent than existing standards.

Response: The final standard has been revised to allow subtraction of background readings. This adjustment was overlooked at the time the negotiated rule was drafted and does not represent an attempt to make the standard more stringent.

Comment: Several commenters (A-90-19: IV-D-73; IV-D-92) (A-90-20: IV-D-19) recommended deleting the requirement to calculate and use response factors to determine whether components are leaking. The commenters (A-90-19: IV-D-73;

IV-D-92) (A-90-20: IV-D-19) stated that most response factors are less than 3, incremental benefit is small, and the program complication is immense. Several commenters (A-90-19: IV-D-69; IV-D-73) added that the equation in the Federal Register notice was incorrect and differed from the version agreed to by the committee. One of these commenters (A-90-19: IV-D-69) noted that the committee equation is only applicable to gas mixtures. For mixtures of liquids, the equation must be adjusted by the vapor pressure of each component.

Response: The EPA reevaluated this proposed requirement in light of these comments and the experience gained by chemical plants that have implemented the negotiated rule. Experience with the correction for response factors has shown the proposed provisions to be significantly more burdensome than originally anticipated. Specifically, several facilities have reported that instead of quantifying 4 to 5 compounds in some streams they are quantifying 50 to 100 compounds. In some cases, owners or operators have elected to correct all instrument readings by the highest response factor for any compound in the process rather than undertake the effort associated with the stream specific corrections.

The EPA also reviewed the reasons the Committee originally considered requiring adjustment of screening values by response factors. The response factor adjustment originated in Committee discussions on studies to improve the emission estimates. (Response factors are used to correct instrument readings to indicate actual concentrations for developing emission estimates.) The appropriateness of adjusting screening values in the leak detection and repair provisions was not considered. These adjustments will not change the emission reductions achieved from implementing the standard. Therefore, the EPA believes that eliminating this provision does not change the effect of the standard and preserves the Committee's intent of minimizing unproductive effort.

The final standard requires the owner or operator to use a monitoring instrument that meets the specifications of Method 21 of appendix A of 40 CFR part 60. The proposed provisions in section 63.180(b)(6) have been removed from the standard, although response factor adjustments are still allowed in cases where no acceptable instrument is available. It has been clarified that the leak definitions are expressed in terms of total VOC, and not speciated concentration readings.

Comment: One commenter (A-90-20: IV-D-19) observed that Method 21 requires fresh daily calibration gas unless a longer shelf life can be demonstrated. The commenter (A-90-20: IV-D-19), thus, thought that this requirement makes use of many process streams as calibration gases impractical as the stream would have to be resampled and analyzed daily.

Response: The requirement for response factor adjustment has been removed from the final standard. As noted above, the instrument must still meet the specifications of Method 21.

5.4.2 Test Methods

Comment: One commenter (A-90-20: IV-D-27) suggested modifying §63.180(b)(4)(iii) to allow calibration at more than one point. The commenter noted the proposed requirement fails to take advantage of the flexibility of many monitoring instruments. The commenter, thus, thought the proposed requirement would result in delays and additional labor for monitoring equipment such as agitators.

Response: The provisions do not prohibit calibrating at more than one point. The provisions require that one of the calibration points be at the leak definition.

Comment: One commenter (A-90-20: IV-D-19) observed that Method 21 requires determination of no detectable emissions using 2.5 percent of the specified leak definition. The commenter noted that for a 500 ppm leak definition, no detectable emissions equates to 25 ppm, which is beyond the accuracy of most monitoring instruments.

Response: The EPA is uncertain as to the nature of the commenter's concern since subpart H does not use the concept of no detectable emissions. Thus, while the commenter may be correct that 25 ppm may not be accurately measured by some or many instruments, the concern is not relevant to the requirements of subpart H.

5.5 RECORDKEEPING AND REPORTING

5.5.1 General

Comment: One commenter (A-90-20: IV-D-4) expressed concern that differences among reporting and recordkeeping requirements makes implementation of rules more difficult. This commenter (A-90-20: IV-D-4) also expressed concern that some States require entirely different reporting procedures; thus, two-records are required and implementation is more difficult.

Response: The EPA does not believe that there should be a problem with differences among rules reporting requirements. First, subpart H provides that equipment subject to existing NSPS or NESHAP and subpart H need only comply with the provisions of subpart H. Thus, there is only one reporting and recordkeeping system required. Second, subpart H provides that if the state requirements provides the same information, those reports can be submitted for the reports required by subpart H. Because subpart H does not specify a required format for records or reports, the EPA thinks that two sets of records will not be necessary.

Comment: Several commenters (A-90-19: IV-D-33; IV-D-69) (A-90-20: IV-D-20) thought the proposed recordkeeping requirements were extremely burdensome. One commenter (A-90-20: IV-D-20) recommended that the recordkeeping section be modified to eliminate all the detailed cross-referencing that LDAR requires, unless a QIP becomes required at the facility. Another commenter (A-90-19: IV-D-69) recommended that the initial report should only contain a statement that the facility is subject to subpart H. This commenter (A-90-19: IV-D-69) suggested that all other information be made available upon request in a reasonable time. The benefits of this approach were that the permit authority would receive complete information at the time they need it for compliance determination and the facility would not have to prepare a report at a time when they are starting to implement subpart H. This commenter (A-90-19: IV-D-69) also suggested that facilities in compliance with subpart H should only submit a statement that the monitoring has occurred and they are in compliance.

Response: The EPA agrees that, to the extent possible, reporting requirements for subpart H should be simplified and the required records clarified. However, the EPA does not think that some of the commenter's suggestions can be adopted because the records are essential to verify compliance or required by the operating permit rule. For example, there needs to be some record of units and equipment subject to the standard. Therefore, to streamline reporting requirements and minimize potential confusion, the following changes have been made to the proposed requirements: (1) submit the compliance notification report no later than 90 days after the applicability date for the group of chemical processes and the periodic reports every 6 months thereafter; (2) allow the source to adjust the reporting schedule to combine the periodic reports for subpart H with those for subpart G once the source comes into compliance with the provisions in subpart G; and (3) consolidation of several special reports into the periodic report.

The final standard does not allow annual reporting as requested by several commenters. Although many components may be monitored on an annual basis, the monitoring frequency for pumps and agitators is monthly and annual reporting would not be consistent with the reporting system in subpart G. The operating permit provisions of the Act, section 504(a), also requires reporting to be at least semiannual. Additionally, unless all units at a source are on the same monitoring schedule, the source would have to submit multiple annual reports. The EPA believes that consolidating the reporting into semiannual reports for subparts G and H is more efficient for both industry and enforcement agencies.

In light of these comments, the EPA reevaluated the proposed requirements to ensure that only those records and reports essential for enforcement of the standard are required. This review showed that some of the commenters' concerns arose from a lack of clarity in the proposed standard regarding actual records required for some of the provisions and other concerns arose from overlapping or duplicative requirements. It was also determined that some provisions should be redrafted to be compatible with computerized data management systems and the revised provisions would still provide the information necessary to demonstrate compliance. Examples of such changes include: allowing a source to maintain on file a written procedure outlining the conditions for delay of repair and requiring certain records only for nonautomated systems. The EPA also reviewed the proposed standard to identify implied recordkeeping requirements and to specify all the required records in §63.181.

Comment: One commenter (A-90-19: IV-D-104) urged the EPA to include provisions for reduced recordkeeping and monitoring requirements after a facility demonstrates sustained compliance over a reasonable period of time. The commenter (A-90-19: IV-D-104) was very concerned with the cumulative impact of all the Clean Air Act requirements.

Response: In regards to monitoring, the proposed and final equipment leak provisions provide for a reduced monitoring frequency for good performance. With a reduced monitoring frequency, less records are required. The EPA has taken reasonable steps to minimize and remove unnecessary or redundant records in the final rule. The monitoring and recordkeeping requirements that are in the final rule are what the EPA considers necessary for ensuring compliance with the rule.

Comment: One commenter (A-90-20: IV-D-27) urged that subpart H explicitly authorize use of computer readable records. The commenter noted that subpart G includes computer readable records in the definition of continuous records.

Response: In the proposed subpart F it specified that records could be computer records. In the final subparts F and I, this provision remains with additional clarifying language stating:

> Records may be maintained in hard copy or computer-readable form including, but not limited to, on paper, microfilm, computer, floppy disk, magnetic tape, or microfiche.

5.5.2 Batch Processes

Comment: One commenter (A-90-19: IV-D-77) recommended that batch processes which operate infrequently should be subject to the requirement for the initial report but should be subject to only annual reporting thereafter. The commenter (A-90-19: IV-D-77) asserted that the proposed semiannual reporting frequency would impose an undue burden.

Response: The title V provisions for operating permits requires semi-annual reports, therefore it would not reduce the burden to the industry for the equipment leaks provisions to require annual reports. The EPA has minimized the records as much as possible so that the information contained in the semi-annual reports is less burdensome.

Comment: One commenter (A-90-19: IV-D-77) recommended that the final rule should explicitly state that the requirements in §63.181(f)(5) for records of any visual, auditory, or olfactory evidence of fluid loss are to be made during the pressure test.

Response: This has been clarified in the final rule.

Comment: One commenter (A-90-20: IV-D-27) urged the EPA to reconsider the recordkeeping requirements for batch processes to reduce the burden. A specific concern noted by the commenter was the difficulties of assigning equipment to a particular process unit because of frequent reconfigurations. The commenter thought that these changes would make it difficult to manage the database.

Response: The requirements for batch processes have been revised in the final rule. The requirements now direct that records be maintained for product or product code and information on whether testing has been conducted when process has been reconfigured for producing a different product. Owners or operators no longer have to have records of the individual items of equipment.

5.6 WORDING OF PROVISIONS

Comment: One commenter (A-90-19: IV-D-74) requested that the definition of "equipment leak" in subpart F should be deleted and that in each instance where the term is used, the rule should be rephrased to clarify the intended meaning. The commenter (A-90-19: IV-D-74) suggested this edit because the definition in subpart F refers to the equipment subject to subpart H and does not recognize that the equipment is only leaking if monitored above a specified concentration.

Response: Subpart F has been clarified in the final rule to specify the equipment that is affected and not refer to "equipment leaks."

Comment: One commenter (A-90-19: IV-D-92) recommended that "equipment in heavy liquid service" should be defined as "equipment not in VHAP gas/vapor service or VHAP light liquid service."

Response: The definition of "in heavy liquid service" in the final rule is as follows:

> In heavy liquid service means that a piece of equipment in organic hazardous air pollutant service is not in gas/vapor service or in light liquid service.

This was the same definition as at proposal, except that at proposal the term "in VHAP service" was used instead of "in HAP service."

Comment: One commenter (A-90-19: IV-D-86) indicated that the EPA should clarify §63.160(c) to clearly state that only the parenthetically listed HAP's are subject to the requirements.

Response: The EPA feels that the applicability of the subpart H requirements is already clear. Thus, no changes have been made to §63.160(c).

Comment: One commenter (A-90-19: IV-D-95) contended that the tables in §63.178, §63.183, and §63.184 should be identified by a number and a title.

Response: All tables in the final rule are treated consistently and according to the requirements set forth by the Office of the Federal Register.

1.0 INTRODUCTION

On December 31, 1992, the U.S. Environmental Protection Agency (EPA) proposed the Hazardous Organic National Emission Standard for Hazardous Air Pollutants (NESHAP) for process units in the synthetic organic chemical manufacturing industry, commonly referred to as the HON (57 FR 62608). The HON was proposed under the authority of section 112(d) of the Clean Air Act. Public comments were requested on the proposed standard and comment letters were received from industry representatives, governmental entities, environmental groups, and private citizens. Also, two public meetings were held, one in Research Triangle Park, North Carolina, on February 25, 1993, and another in Baton Rouge, Louisiana, on March 18, 1993. Five people at the North Carolina meeting and 45 people at the Louisiana meeting presented oral testimony on the proposed NESHAP.

On August 11, 1993, the General Provisions for part 63 (58 FR 42760) were proposed. In order to allow the public to comment on how the General Provisions relate to the Hazardous Organic NESHAP (HON), a supplemental notice was published in the Federal Register (October 15, 1993; 58 FR 53478). Public comments were requested on the overlap between the General Provisions and the HON and on some specific emissions averaging issues. Comment letters regarding the supplemental notice were received from 80 commenters.

The written comments that were submitted and verbal comments made at the public hearings regarding the technical and policy issues associated with wastewater in the proposed rule and supplemental notice, along with responses to these comments, are summarized in the following chapters. In chapter 2.0, the EPA addresses issues associated with control requirements including steam stripping as the reference control technology, the use of biological treatment as a control technology, and clarification of other waste management issues. Chapter 3.0 presents the impacts analysis which includes cost analysis, emission estimates, environmental impacts, and energy impacts. In chapter 4.0, the EPA provides information on issues related to applicability and Group 1/Group 2 determination including clarification of definitions and discussion of overlapping regulations. Chapter 5.0 includes discussion about compliance options. Chapter 6.0 provides information on compliance demonstrations, which comprises biological treatment, performance testing, inspections, and monitoring. In chapter 7.0, the EPA addresses recordkeeping and reporting issues. Chapter 8.0 presents several clarifications concerning wording of the provisions. The summary of comments and responses serves as the basis for the revisions made to the NESHAP between proposal and promulgation.

2.0 CONTROL REQUIREMENTS

In response to commenter confusion, the EPA clarifies the use of the terms "VOHAP concentration" and "HAP" to reflect the proper use of the terms throughout the preamble, regulation, and BID documents. The term "volatile organic hazardous air pollutant concentration" or "VOHAP concentration" means the concentration of an individually-speciated organic HAP in a wastewater stream or a residual as measured by Method 305. The term "VOHAP" does not refer to the lists of organic HAP's in tables 8 and 9 of subpart G. The wastewater provisions of the HON regulate emissions from wastewater of those organic HAP's listed in table 8 for new sources and in table 9 for new and existing sources. The applicability of the requirements in the HON to wastewater streams is based on the VOHAP concentration of the HAP's present in the wastewater stream. The VOHAP concentration of a compound can be calculated by multiplying the HAP concentration of the compound by the compound-specific fraction measured (Fm) value listed in table 34 of subpart G.

2.1 REFERENCE CONTROL TECHNOLOGY

2.1.1 Clarification of the Definition of "Reference Control Technology"

Comment: One commenter (A-90-19: IV-D-73) stated that the definition of reference control technology for wastewater attempts to identify all reference control technologies for collection systems. The commenter (A-90-19: IV-D-73) further stated that there are so many options available for the management and treatment of wastewater that it may not be possible to reiterate them in the definition of reference control technology. The commenter (A-90-19: IV-D-73) suggested revising the definition to clarify that the cited technologies are examples and not all inclusive.

Response: The EPA clarifies that the definition of reference control technology (RCT) for wastewater does not attempt to identify all control technologies for collection systems. The definition of RCT for wastewater does not include collection systems. There is not a reference control technology for collection systems; it is merely a work practice standard.

The EPA agrees that there are a number of options available for complying with the wastewater provisions of the HON. However, the technologies cited in the definition of RCT for wastewater are not examples. The reference control technologies cited in the definition are the bases for determining the equivalent performance of those treatment technologies that an owner or operator may want to employ as alternatives to the RCT. The HAP emission reduction achieved by any alternate treatment technology must be equivalent to or exceed the HAP emission reduction achieved by the RCT.

2.1.2 Steam Stripping as RCT

Comment: One commenter (A-90-19: IV-D-85) stated that highly volatile compounds may evaporate before biological treatment systems have time to work. Therefore, the commenter (A-90-19: IV-D-85) supported steam stripping as an RCT.

Response: The EPA agrees that volatile HAP compounds may be emitted to the atmosphere before reaching the biological treatment unit. However, the EPA recognizes that biological treatment units can achieve high levels of HAP destruction if operated properly. Therefore, the EPA maintains the requirement for suppression of HAP emissions from the collection system down to the treatment process, such as a steam stripper or a properly operated biological treatment unit. Once volatile compounds reach the biological treatment unit, a performance test using Method 304A, Method 304B, or other methods described in appendix C of part 63, is required to ensure that the biological treatment unit is working properly and that the biological treatment unit is achieving the required destruction efficiency.

Comment: Several commenters (A-90-19: IV-D-9; IV-D-45 and IV-F-7.7; IV-D-57; IV-D-70; IV-D-85; IV-D-118; IV-D-124; IV-D-125; IV-F-7.39 and IV-F-12) supported the use of steam strippers and suppression system components such as covers, and other control devices to limit air emissions from wastewater streams. One commenter (A-90-19: IV-F.39 and IV-F-12) stated that steam stripping is an improvement over biological treatment. Another commenter (A-90-19: IV-D-57) stated that the list of HAP's for process wastewater in tables 8 and 9 of subpart G is correct based on both the RCT of steam stripping and the volatility of the chemicals. Several commenters (A-90-19: IV-D-9; IV-D-118; IV-D-124; IV-D-125) claimed that the provisions which allow biological treatment as a substitute to steam stripping weaken the regulation.

Response: While the EPA agrees with the commenter that steam stripping and suppressed collection units provide good control of HAP emissions, the EPA does not agree that allowing biological treatment weakens the regulation. The wastewater collection system must be suppressed down to the treatment process that is used to achieve compliance, including biological treatment, which meets the treatment provisions of §63.138. Additionally, the biological treatment unit must achieve an organic HAP emission reduction equivalent to steam stripping.

Comment: One commenter (A-90-19: IV-D-75) claimed that steam stripping should not be RCT for wastewater, because it does not meet the 12-percent criteria. The commenter

(A-90-19: IV-D-75) stated that the primary application of steam stripping is for product recovery and recycle, and not for control. The commenter (A-90-19: IV-D-75) claimed that the EPA could also designate biological treatment as a reference control technology if it is used by 12 percent of sources and achieves the required efficiency.

Response: The amount of emissions reduction achieved by biological treatment, even for biologically degradable compounds, will vary widely among different facilities due to the wide range in operating and design parameters which define a biological treatment system. The parameters which affect the emission rate of volatile organic compounds include, but are not limited to, the biological degradation rate, surface area, amount of aeration, hydraulic residence time, and the active biomass concentration. Therefore, the performance of individual biological treatment systems with respect to volatile organic compound emission reduction will also vary greatly. For these reasons, the EPA determined that biological treatment would not be appropriate as the RCT. Furthermore, it was not possible to predict the performance of biological treatment units without site-specific data, and therefore, the EPA selected steam stripping as the basis of the standard.

The EPA is aware that many SOCMI facilities use biological treatment units as part of their wastewater treatment systems. However, because biological treatment systems are typically located at or near the end of the wastewater treatment process, many of the volatile regulated compounds are emitted to the atmosphere prior to reaching the biological treatment unit. Additionally, not all of the regulated compounds are significantly biodegradable.

Steam stripping was selected as the reference control technology (RCT) because it is the most universally applicable treatment technology for removing volatile organic compounds from wastewater.

It is assumed that by the term "12-percent criteria" that the commenter was referring to the requirement in section 112(d) of the Act that MACT standards for existing sources must be at least as stringent as the best-performing 12 percent of existing sources. The MACT standard for controlling HAP emissions from HON wastewater collection and treatment systems was based on the best control technology that was universally applicable to all emission points in the SOCMI.

2.1.3 Comparison of Biological Treatment and Steam Stripping

Comment: Four commenters (A-90-19: IV-D-62; IV-D-63; IV-F-1.2 and IV-F-4); (A-90-23: IV-D-17) stated that biological treatment is at least as effective at minimizing emissions as the design stripper and should therefore be included as an RCT.

Response: The EPA agrees that some HAP's regulated under the wastewater provisions of the HON can be biologically degraded at a level equivalent to or exceeding the removal efficiency achieved by steam stripping. However, this will depend on the site-specific design and operating parameters of the biological treatment system. Hence, facilities must demonstrate that their biological treatment system achieves a volatile organic HAP emissions reduction equivalent to steam stripping. The EPA has added an additional biological treatment option to the final regulation. Under this option, the owner or operator may biologically treat all process wastewater. Compliance is achieved by demonstrating 95-percent biodegradation of total mass of HAP's listed on table 9 of subpart G. Facilities complying with this option must comply with §63.133 through §63.137 for all process wastewater streams. However, facilities do not have to comply with either the applicability determination requirements of §63.144 or the Group 1/Group 2 determinations.

Comment: One commenter (A-90-19: IV-D-32) provided data depicting a typical configuration of an activated sludge system that would effectively treat biodegradable HAP's when a suppressed collection and treatment system is also used. The commenter (A-90-19: IV-D-32) stated that many of the same assumptions that the EPA used in the development of the BACT/LAER document were used by the commenter in developing the typical activated sludge unit configuration.

The commenter (A-90-19: IV-D-32) provided treatment efficiency estimates for biological treatment units that were derived using WATER7. One commenter (A-90-19: IV-D-92) cited a study that was completed by the CMA using WATER7 that indicates that biological treatment has a significantly higher removal rate than steam stripping. The commenter (A-90-19: IV-D-92) claimed that biological treatment produces limited air emissions and has a 99-percent removal efficiency for each HAP in proposed strippability groups A, B, and C.

Two commenters (A-90-19: IV-D-92) (A-90-23: IV-D-9) stated that biological treatment effectively removes HAP's and generates a low level of air emissions.

One commenter (A-90-19: IV-D-92) included a report funded by the EPA which indicates that biological treatment is an effective way to treat HAP's in wastewater.

One commenter (A-90-23: IV-D-9) stated that a design steam stripper should not be designated as the RCT for wastewater because it is infeasible for batch processes. The commenter (A-90-23: IV-D-9) claimed facilities would have a difficult or impossible task determining which streams are subject to the rule because pharmaceutical batch processes generate numerous wastewater streams. The commenter (A-90-23: IV-D-9) claimed that batch processes produce wastewaters which are variable in composition and concentration, and consequently make the use of a single steam stripper design impossible. The commenter (A-90-23: IV-D-9) claimed that achieving the required 95 percent strippability for low concentration streams would be difficult.

<u>Response</u>: In section 3.2.2 of this BID volume, the EPA explains why claims by the commenter are based on a flawed analysis. The biological treatment system described by the commenter does not achieve 99 percent removal of strippability group A, B, and C compounds according to WATER7 results. As stated in other responses to comments regarding biological treatment, the level of biodegradation achieved will vary among different facilities. The EPA agrees that, under some conditions, biological treatment will achieve HAP emissions reduction equal to or exceeding that obtained by steam stripping. For this reason, the EPA has included biological treatment options in the proposed and final rule.

Steam stripping is feasible for batch processes. Wastewater can be stored until enough of it is accumulated for treatment. Batch steam strippers are currently available from vendors. The commenter provided no data to demonstrate that achieving the required removal efficiencies at low concentrations will be difficult. Nor did the commenter (A-90-23: IV-D-9) define "low" concentration. The applicability threshold of the regulation was chosen to prevent the inclusion of low concentration streams. The estimates made by the EPA indicate that the removal efficiencies required in the HON are achievable for Group 1 wastewater streams.

<u>Comment</u>: Three commenters (A-90-19: IV-D-61; IV-D-92; IV-D-108) asserted that steam stripping is not justified as an RCT and that biological treatment should be specified as an RCT for several reasons. Three commenters (A-90-19: IV-D-32; IV-D-92), (A-90-23: IV-D-20) claimed that the EPA did not provide any scientific analysis of HAP removal from steam

stripping in the proposal BID volume 1B. The commenter (A-90-19: IV-D-92) stated that the strippability groups and target removal efficiencies in table 9 of the proposed rule are not consistent with the laws of chemistry and thermodynamics, and that the use of Henry's law constants must include consideration of solubility. Two commenters (A-90-19: IV-D-92; IV-D-108) claimed that water soluble HAP's cannot be removed from wastewater by steam stripping, but the concentrations of these HAP's can be reduced by biological treatment. One commenter (A-90-19: IV-D-92) added that the EPA's inaccurate emissions estimates for biological treatment units and steam strippers led the EPA to propose the wrong RCT. One commenter (A-90-19: IV-D-32) requested that the EPA submit supporting documentation for estimating target removal efficiencies to the docket prior to promulgation of the final rule.

Response: It is assumed that the commenter is referring to the basis for the HAP removal efficiencies achieved by the design steam stripper. The commenter is correct that this was not discussed in the proposal BID. However, the EPA has documented the RCT performance estimates, for both the proposed and final regulation. For the proposed rule, steam stripper performance was documented in a memorandum titled *"Approach for Estimating Emission Reductions of Hazardous Air Pollutants from Wastewater Streams in the HON,"* (Docket No. A-90-23, Item II-B-5). For the final rule, steam stripper performance is documented in a memorandum titled *"Estimating Steam Stripper Performance and Size,"* to M.T. Kissell, U.S. Environmental Protection Agency from C. Bagley, Radian Corporation, August 24, 1993.

The commenter did not indicate what laws of chemistry and thermodynamics the target removal efficiency groups and removal efficiencies are inconsistent with.

It is unclear what the commenter means by stating that Henry's law constants must consider solubility. The Henry's law constant describes the proportional relationship between the concentration of a compound dissolved in a liquid, and the pressure of that compound in the gas phase above the liquid. The Henry's law constant of a compound in solution in water is a function of the temperature and pressure of the system, and the solubility of the compound.

Water-soluble HAP's are removed by steam stripping. It is true that if a condenser is present, steam may condense out with the soluble organics. However, steam strippers are typically operated at less than 1 kilogram of steam per kilogram of wastewater. Therefore, water soluble compounds are concentrated in the overhead stream.

The commenter's statement that the EPA's emission estimates for biological treatment units are inaccurate is based on an analysis submitted by another commenter (A-90-19: IV-D-32). As described in section 3.2.2 of this BID volume, an input error in the referenced analysis led to erroneous results. Therefore, the EPA concludes that emissions from biological treatment units are not overestimated and that the EPA has not proposed the wrong RCT.

Comment: One commenter (A-90-19: IV-D-92) stated that some HAP's are current food sources for microbes in biological treatment systems. One commenter (A-90-23: IV-D-4) stated that the EPA's requirement to steam strip methanol would remove a necessary food source and require the addition of a different nutrient at the biological treatment plant. The commenter (A-90-23: IV-D-4) stated that the methanol is necessary for the control of nitrogen-containing pollutants in the facility's wastewater streams.

Response: The EPA clarifies that steam stripping is only one option for complying with the wastewater provisions of the HON. Any treatment technology may be used, including biological treatment, provided that the emissions reductions achieved are equivalent to that achieved by steam stripping. The EPA also notes that the target removal efficiency for methanol is relatively low.

Comment: One commenter (A-90-19: IV-D-97) stated that steam stripping is not a control, but rather a separation process which requires thermal treatment of concentrated organic streams. The commenter (A-90-19: IV-D-97) contended that fuel and organic stream treatment will generate NO_x and CO_2 pollution, which would not be generated by biological treatment.

Response: The EPA agrees that steam stripping is a separation process, which can be used to remove volatile organic compounds from wastewater. By separating the volatile organic compounds from the wastewater, their emissions to the atmosphere could be reduced. The recovered organics from steam stripper overheads can be recycled, burned as fuel, or incinerated. Therefore, steam stripping acts as a control device.

The EPA's analysis shows that secondary emissions resulting from steam production for steam stripping are approximately 100 times lower than the resulting HAP-emission reductions. Therefore, an overall environmental benefit is achieved. The EPA's analysis is documented in the memorandum *"Secondary Impact Factors used in the Framework for Steam Stripping of Wastewater,"* to M.T. Kissell, U.S. Environmental Protection Agency, from K. Pelt, Radian Corporation, February 1, 1994.

Comment: Two commenters (A-90-19: IV-D-108); (A-90-23: IV-D-9), who expressed a preference for the use of biological treatment, indicated that biological treatment converts HAP's to nonhazardous constituents, while steam stripping merely concentrates the hazardous constituents and requires further treatment. One commenter (A-90-19: IV-D-108) summarized the results from several studies which seem to indicate that biodegradation rather than volatilization is the principal fate of many HAP's in biological treatment units unless the HAP is highly volatile and resistant to biodegradation.

Response: The data summarized by the commenter demonstrate the wide range of biodegradation that can be achieved. For example, the data show that the percent of methylene chloride biodegraded is reported to be from 43 to 97.1 percent and the amount volatilized is reported to be from 2 to 43 percent. Other compounds for which data are summarized by the commenter exhibit similarly wide ranges for the percent biodegraded and/or volatilized.

The EPA agrees that a degree of biodegradation can be achieved for many organic compounds, but that the degree of biodegradation for any given compound achieved will vary widely, depending on the site-specific biological treatment unit design and operating parameters. Furthermore, the recovered organics from steam stripper overheads can be recycled, or burned as fuel, in addition to being incinerated.

Comment: One commenter (A-90-19: IV-D-85) stated that the EPA should not allow facilities to use biological treatment to demonstrate equivalence with steam stripping when treating streams that contain low volatility compounds because a small percentage of the highly volatile compounds, which would be removed by steam stripping, will volatilize into the air during biological treatment.

Response: The EPA allows any technology to be used for treatment, provided that organic HAP emissions reductions can be demonstrated to be equivalent to steam stripping. Therefore, every compound must have an emission reduction in the biological treatment unit that is equivalent to the emission reduction in a steam stripper. For a biological treatment system, the owner or operator must demonstrate equivalence per §63.138(b)(1)(iii)(C), §63.138(c)(1)(iii)(D), or §63.138(e). Because of the site-specific variability in performance of biological treatment units, it would not be appropriate to exempt such units from the equivalency demonstration.

Comment: Several commenters (A-90-19: IV-F-1.2 and IV-F-4; IV-D-113; IV-D-77; IV-D-108) stated that biological treatment is more cost effective than steam stripping and that the cost of disposing of consumed biomass generated by biological treatment units is less than the cost of disposing of residuals generated by steam strippers.

One commenter (A-90-19: IV-D-71) stated that biological treatment should be encouraged, where appropriate, since it can perform the necessary emissions reductions with little negative impact on the environment.

Response: The commenters (A-90-19: IV-D-113; IV-F-1.2 and IV-F-4) present no emission or cost data to substantiate their statement that biological treatment is more cost-effective than steam stripping. The EPA agrees that biological treatment units may be more cost-effective to operate than a steam stripper when the biological treatment unit is demonstrated to achieve mass removal of HAP's equal to or exceeding that achieved by steam stripping. However, this depends on the cost (if any) of modifying the biological unit to achieve the required mass removal. Without data, the EPA cannot respond more fully.

The EPA has added an additional biological treatment option to the final regulation. Under this option, the owner or operator may biologically treat all process wastewater. Compliance is achieved by demonstrating 95-percent biodegradation of total mass of table 9 HAP's. Facilities complying with this option must comply with §63.133 through §63.137 for all process wastewater streams.

The cost of disposing of residuals generated by steam stripping depends on the disposal method. The highest disposal cost can be expected to occur for off-site incineration. However, facilities may choose to incinerate residuals in on-site boilers or to recycle residuals to the process. Multiple disposal methods, such as landfarming, composting, and on- and off-site incineration, are also utilized for disposal of consumed biomass. Depending on the disposal method, residual disposal cost may or may not exceed the cost of consumed biomass disposal.

The EPA agrees that a properly operated biological treatment unit may achieve emission reduction equivalent to that achieved by steam stripping for some organic HAP's with little negative impact on the environment. For this reason, the EPA included the required mass removal provisions in §63.138(b)(1)(iii)(C), §63.138(c)(1)(iii)(D), or §63.138(e) of the final rule.

Comment: Two commenters (A-90-19: IV-F-1.2 and IV-F-4: IV-D-108) contended that biological treatment was better for the environment than steam stripping because it uses less energy and does not generate additional pollution from fuel combustion.

Response: The EPA agrees that biological treatment of wastewater consumes less energy than steam stripping and does not generate the secondary criteria pollutant emissions associated with the burning of fuel required to generate steam for steam stripping. However, the HAP emissions reduction achieved by biological treatment will vary widely among different facilities. Additionally, not all of the regulated compounds are significantly biodegradable. Steam stripping is the most universally applicable treatment technology for removing volatile organic compounds from wastewater. The secondary impacts analysis conducted by the EPA shows that the secondary criteria pollutant impacts of the HON are 100 times less than the HAP emission reduction resulting from steam stripping of wastewater. Therefore, the EPA concludes that steam stripping of wastewater is an environmentally acceptable treatment technology.

The secondary impacts estimated by the EPA are based on the assumption that all facilities will treat all the Group 1 streams using steam stripping. However, some facilities may choose other treatment technologies, including biological treatment, which use less energy and generate less secondary criteria pollutant emissions than steam stripping. Therefore, the EPA's estimate of secondary impacts represents conservative estimates of the secondary impacts associated with the HON.

2.1.4 Use of Biological Treatment as a Control Technology

Comment: Several commenters (A-90-19: IV-D-58; IV-D-77; IV-D-92; IV-F-1.2 and IV-F-4) (A-90-23: IV-D-4; IV-D-9; IV-D-20) stated that the most common type of wastewater treatment currently employed by existing SOCMI sources is biological treatment.

Several commenters (A-90-19: IV-D-32; IV-D-34; IV-D-55; IV-D-62; IV-D-63; IV-D-67; IV-D-77; IV-D-79; IV-D-86; IV-D-92; IV-D-97; IV-D-113; IV-F-1.2 and IV-F-4) (A-90-23: IV-D-4; IV-D-171; IV-D-20) asserted that the EPA's decision should include biological treatment as an RCT in the final rule.

One commenter (A-90-19: IV-D-71), who supported biological treatment as an RCT, stated that biological treatment systems are being used successfully for control of wastewater and for the remediation of groundwater and soils.

Three commenters (A-90-19: IV-D-32; IV-D-86; IV-D-113) recommended the use of biological treatment as an RCT option because it will provide treatment for organic HAP's in many wastewater streams, such as Group 2 streams, that are not subject to the control requirements of the proposed rule.

Two commenters (A-90-19: IV-D-77; IV-D-79) stated that the EPA's assessment of MACT was flawed by the omission of biological treatment as an RCT.

Response: Steam stripping was selected as the RCT because it is the most universally applicable treatment technology for removing volatile organic compounds from wastewater.

Typically, the biological treatment system at a SOCMI facility is at or near the end of the wastewater treatment process. Therefore, many of the regulated compounds could be emitted to the atmosphere prior to reaching the biological treatment unit due to their volatility if there is no emission suppression up to the biological treatment unit. Additionally, not all of the regulated compounds are significantly biodegradable. The amount of emissions reduction achieved by biological treatment, even for biologically degradable compounds, will vary widely among different facilities due to the wide range in operating and design parameters which define a biological treatment system. The parameters which affect the emission rate of volatile organic compounds include, but are not limited to, the biological degradation rate, surface area, amount of aeration, hydraulic residence time, and the active biomass concentration. These parameters will vary widely among facilities. Therefore, the performance of individual biological treatment systems with respect to volatile organic compound emission reduction will also vary greatly.

The EPA is aware that many SOCMI facilities employ biological treatment units as part of their wastewater treatment systems. However, for the reasons discussed above, the EPA did not select biological treatment as the reference control technology.

It would be inappropriate for the EPA to define the wastewater RCT as biological treatment based on the fact that biological treatment units will treat organic HAP's other than those regulated under the HON. Steam strippers will also remove organic HAP's not regulated by the HON wastewater provisions, to the extent that such compounds exist in Group 1 streams.

Comment: One commenter (A-90-19: IV-D-32) stated that the wastewater MACT floor should include biological treatment with suppressed sewer systems.

Response: In order for the MACT floor to reflect biological treatment with suppressed sewer systems, the EPA would have to demonstrate that this level of control currently exists at the average of the top 12 percent of SOCMI facilities. In the preamble to the proposed HON regulation, the EPA requested specific information which would support an analysis to determine if biological treatment with suppressed sewer systems in fact reflects the MACT floor for wastewater in the SOCMI. Although the EPA did receive information during the comment period, the data were not sufficient to indicate a MACT floor based on biological treatment with suppressed sewer systems.

However, information provided by the commenter (A-90-19: IV-D-32) was used to revise estimates of volatile organic HAP emissions from wastewater. These revisions included accounting for some suppression of the wastewater collection and treatment system, whereas in the original analysis, the EPA had assumed the wastewater collection and treatment system was unsuppressed. The EPA clarifies that biological treatment units were included in the original analysis.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-75) (A-90-23: IV-D-2) suggested the EPA incorporate a combination of an emissions-suppressed collection system with a biological treatment unit as an RCT in the HON for those chemicals that are effectively biodegradable. One commenter (A-90-19: IV-D-97) stated that biological treatment should be the primary RCT choice, followed by steam or air stripping for those HAP's that are nonbiodegradable.

The commenters (A-90-19: IV-D-32; IV-D-75) (A-90-23: IV-D-2) referred to the following references which indicate that biological treatment is an effective means of biodegrading a wide range of chemical compounds:

1. A table from an EPA publication entitled *"Estimating Releases and Waste Treatment Efficiencies for the Toxic Chemical Release Inventory Form,"* which indicates that most nonchlorinated organics have high percent removal and low volatilization in an acclimated biological treatment system,

2. The NETAC data base, associated with the University of Pittsburgh and maintained for the biological treatment industry, which indicates that there are microbes that can remove chlorinated compounds, and

3. A nomograph plotting the percent biodegraded for 18 compounds as a function of the compounds' Henry's law constants and biokinetic rate constants, K_1.

Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-58; IV-D-71; IV-D-75) asserted that many of the HAP's listed in the regulation are not volatile and cannot be removed by steam stripping but can be removed using biological treatment. Two commenters (A-90-19: IV-D-32; IV-D-75) suggested that the EPA should specify biological treatment as RCT for all VOHAP's with Henry's law constants less than 10^{-4} atm-m^3/mole, which are biodegraded at an efficiency of 98 percent or greater.

Response: The EPA agrees that biological treatment can play an important role in the reduction of organic HAP emissions from wastewater, and has therefore included provisions for biological treatment as a compliance option in the wastewater provisions of the HON. Steam stripping was selected as the wastewater RCT because it is the most universally applicable treatment method for removing volatile organic HAP's from wastewater and thereby preventing their release to the atmosphere. Steam stripping effectively removes all the compounds regulated under the wastewater provisions of the HON, including those which are not readily biologically degradable. The development of the design steam stripper which is the basis for the performance standards for the wastewater provisions of the HON is documented in the memorandum *"Estimating Steam Stripper Performance and Size,"* to M.T. Kissell, U.S. Environmental Protection Agency from C. Bagley, Radian Corporation, August 24, 1993.

The table referenced by one commenter (A-90-23: IV-D-21) from the EPA publication *"Estimating Releases and Waste Treatment Efficiencies for the Toxic Chemical Release Inventory Form,"* does not fully indicate that most chlorinated compounds have high percent removals in acclimated biological treatment systems. The document states that a number of design and operational factors will affect the fate of the listed compounds at any given treatment plant and the data should be used only as a rough approximation.

Table

TABLE 2-1. EXAMPLE OF BIOLOGICAL FATE DATA IN ACCLIMATED BIOLOGICAL TREATMENT SYSTEMS[1]

Compound	% Volatilized to Air	% Partitioned to Sludge	% Biodegraded
1,2-Dichloroethane	45	5	41
1,1,2,2-Tetrachloroethane	36	4	50
Tetrachloroethane	40	0	40
1,1,2-Trichloroethane	76	1	18
Vinyl chloride	86	2	8
Trichloroethylene	67	6	23
Chloroform	63	2	25

1 *"Estimating Releases and Waste Treatment Efficiencies for the Toxic Chemical Release Inventory Form."*

2-1 of this BID volume summarizes some of the contents of the referenced table for eight of the chlorinated compounds regulated by the wastewater provisions of the HON. Each of these compounds has a steam stripper removal efficiency in excess of 99 percent, based on the design and operating parameters of the design steam stripper. This exceeds the percent biodegradation values in table 2-1 of this BID volume for all the compounds listed. However, facilities may choose to use biological treatment if it can be demonstrated to meet the applicable requirements in §63.138(b)(1)(iii)(C), (c)(1)(iii)(D), or (e).

Based on a comment received from one commenter, the EPA obtained data from the National Environmental Technology Applications Corporation (NETAC) data base. This corporation provides profiles and descriptions of technical principles, applications, operating features, and innovative technologies for waste treatment technologies. However, this information is provided for a fee, and the commenter did not include data. The EPA encourages sources to use all available information at their disposal, but cannot comment further on this particular source without specific data.

The EPA has also reviewed the third data set submitted by commenters; which is nomograph that presents data for 18 compounds. The fraction biodegraded values used in the analysis are based on a faulty estimation of the percent of biodegradation and are discussed in more detail in section 3.2.2 of this BID volume. Therefore, the revisions suggested by the commenters have not been implemented. The EPA clarifies that, based on these and additional comments received, seven compounds were deleted from regulation under

subparts F and G, as discussed in section 3.2 of this BID volume.

2.1.5 Consistency of HON with Benzene Waste NESHAP, OCPSF, and Other Rules

Comment: Several commenters (A-90-19: IV-F-1.6 and IV-F-6; IV-D-67; IV-D-55; IV-D-32; IV-D-62; IV-D-63; IV-D-58; IV-D-92) (A-90-19: IV-D-20) suggested that by adding biological treatment as an RCT to treat all of the organic HAP's addressed in the rule, the HON would be consistent with the Benzene Waste NESHAP requirements.

Response: Although the EPA has not included biological treatment as the RCT in the final rule, biological treatment remains an allowable method of treatment using mass removal calculations to show compliance. With regard to the consistency with the Benzene Waste NESHAP, the EPA has allowed the use of biological treatment as an alternative compliance option to treat benzene waste that is subject to the Benzene Waste NESHAP because the EPA determined that biological treatment systems would sufficiently biodegrade benzene in dilute wastewater streams. However, the HON includes many more regulated HAP's in addition to benzene. The EPA continues to allow the use of biological treatment units as treatment for HAP's regulated by the HON as long as the biological treatment systems achieve the RMR of HAP's from the wastewater stream as determined by §63.145(h)(2). The EPA has added a compliance option to the final rule that allows for the treatment of all process wastewater streams in a biological treatment unit. An owner or operator who elects to use this option in §63.138(e) must ensure that the biological treatment unit achieves 95-percent HAP removal from the wastewater streams as specified in §63.145(i).

Comment: Two commenters (A-90-19: IV-D-67; IV-D-58) suggested listing ranges for the operating parameters of a biological treatment unit, as in the Benzene Waste NESHAP.

One commenter (A-90-19: IV-D-67) also suggested that the EPA should provide a maximum inlet concentration for each individual pollutant entering a biological treatment system to minimize risk of volatilization (i.e., 10 ppmw as in the Benzene Waste NESHAP).

Response: The Benzene Waste NESHAP regulates only a single chemical. However, the HON regulates 75 additional HAP's, and the EPA was unable to determine a set of operating parameters for biological treatment units which would ensure HAP emission reductions of all regulated compounds at levels equivalent to steam stripping. Therefore, the EPA has not listed operating ranges for biological treatment units in the HON.

Comment: Three commenters (A-90-19: IV-D-55; IV-D-58; IV-F-1.6 and IV-F-6) stated that many facilities are currently using biological treatment units to comply with Benzene Waste NESHAP requirements. Several commenters (A-90-19: IV-D-55; IV-D-58; IV-D-62; IV-F-1.6 and IV-F-6) are concerned that many compliance uncertainties and complexities will result when SOCMI and non-SOCMI wastewater streams (e.g., refinery wastewater streams) are combined in the collection system or the biological treatment unit.

Response: The commenter does not provide details concerning the types of uncertainties and complexities that could result from treating wastewater streams that are subject to both the HON and the Benzene Waste NESHAP. However, the final regulation addresses overlap with other regulations for wastewater at §63.110(e). In the final rule, after the dates of compliance specified in §63.100(k) of subpart F, streams subject to the HON and to the Benzene Waste NESHAP must comply with both regulations. The EPA cannot anticipate every site-specific situation, but has developed the regulation to provide flexibility in the methods available for compliance.

Comment: One commenter (A-90-19: IV-D-89) claimed that the type of steam stripper required in the Benzene Waste NESHAP may not be acceptable under the proposed HON. Another commenter (A-90-19: IV-D-92) stated that refineries which have chosen to comply with the Benzene Waste NESHAP using biological treatment will be required to adopt additional, expensive treatment methods to comply with both the HON and the future petroleum refinery MACT standards.

Response: An existing steam stripper that was installed to comply with the Benzene Waste NESHAP can still be used to comply with the HON. For an existing source, any treatment process can be used to demonstrate compliance with the HON wastewater provisions as long as the treatment process complies with any of the required treatment options in §63.138.

Comment: Two commenters (A-90-19: IV-D-64; IV-D-86) supported biological treatment as the RCT for SOCMI facilities and stated that (1) biological treatment is the most common technology used by direct dischargers in the OCPSF wastewater category, and (2) companies have made significant expenditures to meet OCPSF limitations using biological treatment.

Response: Owners and operators may use existing biological treatment units to meet the HON wastewater treatment requirements by demonstrating the required level of biodegradation. In cases where biological treatment cannot meet the required biodegradation, facilities may need to install additional treatment equipment such as a steam stripper. In the final rule for OCPSF effluent guidelines (52 FR 42561), the EPA stated that facilities should consider incorporating steam stripping as the treatment method for meeting the effluent guidelines because subsequent air emission regulations may require steam stripping.

Comment: One commenter (A-90-19: IV-D-85) indicated that the EPA had strongly recommended in the Federal Register

(52 FR 42561) that facilities incorporate steam stripping to comply with the OCPSF effluent guidelines to avoid costly retrofit requirements that may subsequently be imposed under the Act. Therefore, the commenter (A-90-19: IV-D-85) contended that the EPA should not allow facilities to comply with the HON through the use of treatment that is less effective than steam stripping.

Response: The EPA clarifies that steam stripping is an effective method of treatment to reduce HAP emissions from wastewater. However, the EPA continues to allow other treatment processes that can achieve equivalent HAP emission reductions in order to allow flexibility in compliance and the opportunity for sources to use existing control equipment.

Comment: One commenter (A-90-19: IV-D-92) stated that the OCPSF Effluent Guidelines and Standards cite biological treatment as the best available technology for SOCMI and as a control technology associated with the NSPS for new SOCMI sources, and allows the use of biological treatment to comply with pre-treatment requirements. The commenter (A-90-19: IV-D-92) also claimed that subpart I (Direct Discharge Point Sources That Use End-of-Pipe Biological Treatment) of these standards gives effluent limits in the low parts per billion range for many of the chemicals subject to the HON. The commenter (A-90-19: IV-D-92) cited these other regulations as support for including biological treatment as the RCT in the HON.

Response: The EPA continues to allow treatment processes other than steam strippers to meet HAP emission reduction requirements. Facilities that have previously installed biological treatment systems to comply with other regulations may continue to use them to comply with the HON as long as they meet the required HAP emission reductions.

Comment: One commenter (A-90-23: IV-D-9) expressed concern that future pharmaceutical NPDES effluent guidelines may conflict with the type of steam stripping designated by the HON.

Response: The commenter does not provide any details about how the two regulations may conflict. Neither the NPDES effluent guidelines nor the HON specify that a steam stripper must be used to achieve compliance, therefore, without more information, no conflict has been identified.

Comment: One commenter (A-90-19: IV-D-92) reported that SOCMI facilities holding NPDES permits are required to conduct "whole effluent biological testing" to determine if the effluent from the facilities causes mortality or morbidity in "exquisitely sensitive" biological organisms (e.g., 7-day old fat head minnows). The commenter (A-90-19: IV-D-92) stated that this type of testing was completed and the results do not indicate that the chemicals on the HAP list in the HON are toxic to these organisms.

Response: Although facilities holding NPDES permits may be required to conduct whole effluent biological testing, the results of such tests do not necessarily indicate compliance with the HON. Furthermore, the tests required for facilities holding NPDES permits are designed to determine the toxicity of the effluent and do not determine anything about air emissions. Additionally, toxicity does not always correlate with concentration or quantity. For example, a large amount of one compound may not be as toxic as a small amount of another compound.

2.1.6 Steam Stripper Design Specifications

Comment: Two commenters (A-90-19: IV-D-104; IV-D-108) argued that the EPA should not specify the design of a steam stripper. One commenter (A-90-23: IV-D-9) claimed that the EPA's design steam stripper does not reflect practical performance. Several commenters (A-90-19: IV-D-75; IV-D-104; IV-D-108) contended that the design of the steam stripper does not adequately consider site-specific conditions such as steam quality, the specific mix of chemicals in the wastewater, quantity of wastewater, wastewater salinity, total carbon, and the method by which individual strippabilities were determined. Two commenters (A-90-19: IV-D-75; IV-D-108) said that these variables must be considered to optimize effectiveness and cost and are best addressed on a site-specific basis. Two commenters (A-90-19: IV-D-104; IV-D-108) recommended that the agency allow an alternative steam stripper design which meets the performance criteria of the RCT.

<u>Response</u>: The provisions in §63.138(g) of the final rule for a design steam stripper is one option for complying with the wastewater treatment provisions of the HON. Other control technologies, including steam strippers with alternative designs, are also allowed as long as they meet the performance criteria of the RCT (e.g., outlet concentration or required mass removal). However, a steam stripper meeting the design criteria in §63.138(g) does not require a compliance demonstration, whereas a compliance demonstration is required for any alternative design. Owners and operators are required to comply with the appropriate monitoring, reporting, and record keeping provisions regardless of whether the treatment device complies with the design steam stripper provisions in §63.138(g) or is an alternative design.

Steam stripper performance was determined using the Kremser equation. The Kremser equation can be used to determine the removal efficiency of a steam stripper at a given steam-to-feed ratio, number of theoretical trays, and compound-specific Henry's law constants. The commenters (A-90-19: IV-D-104; IV-D-108) did not propose a method for accounting for the site-specific conditions specified in their comments, or suggest how these parameters might affect the design of the steam stripper.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-64; IV-D-108) (A-90-23: IV-D-20) stated that the EPA's design of the RCT steam stripper should include only the minimum design specifications needed to achieve the performance standard. Two commenters (A-90-19: IV-D-32; IV-D-108) requested that the EPA require a performance standard rather than an equipment standard to be achieved by the RCT steam stripper. The commenters (A-90-19: IV-D-32; IV-D-108) suggested that the EPA could implement a performance-oriented standard by including a minimum number of equilibrium stages and a HAP removal target rather than extensive design specifications.

Response: The RCT for wastewater is not limited to an equipment standard. The RCT for wastewater includes the following options: (1) an equipment standard in §63.138(g); (2) performance standards in §63.138(b)(1)(ii)(A) or (C), §63.138(b)(1)(iii)(A) or (C), §63.138(c)(1)(ii)(B), (C), or (D), and §63.138(c)(1)(iii)(B), (C), or (D); or (3) work practice standards in §63.138(b)(1)(i) or (c)(1)(i). The EPA selected this approach for defining RCT in order to provide flexibility while ensuring equivalent levels of control. The design steam stripper specified in §63.138(g) is only one of several compliance options. Facilities may use existing steam strippers not meeting the design specifications of §63.138(g), but must demonstrate the existing steam stripper is equivalent to the RCT by demonstrating compliance with the applicable performance standards. For example, an existing facility using an existing steam stripper to treat a combination of Group 1 wastewater streams has a choice of demonstrating compliance with §63.138(c)(1)(iii)(B), (C), or (D).

A combination of a standard including a minimum number of equilibrium stages and a HAP removal target would not serve to augment or simplify the current wastewater provisions of the HON. The current wastewater provisions provide a compliance option of meeting a target HAP removal. Combining this with a required number of theoretical plates would be more restrictive than the current provisions for meeting the target HAP removal which does not require a set number of theoretical plates.

Comment: One commenter (A-90-19: IV-D-73) alleged that only the removal efficiency should be specified for the RCT and that all other design parameters should be specified by the owner or operator on a case-by-case basis using a process simulation model and the required HAP removal. The commenter (A-90-19: IV-D-73) was specifically concerned with specifying one steam-to-feed mass ratio and cited a report which shows different steam-to-feed ratios that can be used to achieve a 99-percent removal in columns operating at different pressures for a benzene-water mixture.

Response: The current wastewater provisions of the HON allow owners or operators to meet the target HAP removal requirements using a steam stripper with different operating and design parameters than those specified in §63.138(g) of the final rule. Owners and operators may also use treatment technologies other than steam stripping to meet target HAP removal requirements. However, any treatment device which differs from the design and operating requirements of §63.138(g) is subject to a compliance demonstration by the procedures in either paragraph §63.138(j)(1) or (j)(2).

Comment: One commenter (A-90-23: IV-D-4) stated that the detailed operating parameter ranges for the plate-type atmospheric pressure steam stripper do not represent a modern steam stripper design or a commonly employed technology for wastewater treatment in the SOCMI. The commenter (A-90-23: IV-D-4) suggested that a way to increase flexibility in steam stripper design is to specify a modeling procedure, such as ASPEN, and accept as an RCT any design predicted to achieve performance equal to that of the design steam stripper for compounds of concern.

Response: Section 63.138(j)(1) allows owners or operators to demonstrate performance equivalent to that of the design steam stripper using a design analysis and supporting documentation.

2.1.6.1 Tray Efficiency

Comment: One commenter (A-90-19: IV-D-78) claimed that since the design steam stripper requires at least 10 theoretical trays, the EPA should not specify column height. The commenter (A-90-19: IV-D-78) indicated that packing is more efficient and could achieve the required theoretical trays with less height.

Response: The 10 theoretical trays specified in the proposed regulation has been changed to reflect 10 actual trays. Steam strippers require adequate tray spacing to prevent flooding. The space between each tray multiplied by the number of trays gives the active column height. Therefore, it is necessary to specify the active column height as well as the number of trays.

The EPA agrees that packing may be more efficient under some conditions than spacing trays. Additionally, there is nothing in §63.138 which prevents an owner or operator from installing a packed column steam stripper for treating Group 1 streams. However, the packed column design must meet the performance criteria of the RCT. The EPA chose to base the cost analysis on a tray column because they are more universally applicable (i.e., packed columns are more susceptible than tray columns to problems as a result of wastewater particulate loading).

Comment: One commenter (A-90-23: IV-D-17) disagreed with the concept of defining a minimum number of theoretical trays for the design steam stripper. The commenter (A-90-23: IV-D-17) claimed that column dynamics and vapor-liquid equilibrium based on actual data from a steam stripper must be known in order to determine the number of theoretical stages.

The commenter (A-90-23: IV-D-17) then stated that scale-up is difficult even if actual data is known because of dispersion caused by radial and axial mixing.

Response: The EPA agrees with the commenter regarding defining the number of trays, and has revised §63.138(g) of the final rule to specify the number of actual trays. However, actual steam stripper data is not required to determine the number of theoretical trays. The number of theoretical trays can be determined using the Kremser equation knowing only the steam-to-feed ratio, the desired treatment performance, and compound-specific Henry's law constants. Scale-up from the number of theoretical trays to actual trays can be accomplished using an overall tray efficiency which corrects for the assumption that vapor-liquid equilibrium is not reached at each individual stage in the column. For the final rule, the EPA used an overall tray efficiency of 30 percent to scale from theoretical to actual trays.

Comment: One commenter (A-90-19: IV-D-75) provided results of steam stripper simulations using a PRO-II program. The results indicate that every separation in the study was achieved with three or four theoretical stages by using a steam rate of > 100 lb/hr, corresponding to a steam-to-feed ratio of 0.12 to 0.14 kilogram of steam per kilogram of wastewater.

Response: The EPA agrees that the required treatment performance levels can be achieved by a steam stripper with three theoretical trays. However, the commenter assumes a different wastewater feed temperature to the steam stripper. Whereas the commenter assumed a feed temperature of 35 ^{o}C, the EPA assumed that the wastewater feed would be preheated to 95 ^{o}C before entering the steam stripper column. Therefore, the commenter's steam-to-feed ratio of 0.12 to 0.14 kilograms of steam per kilogram of wastewater is higher than would be required for a system in which the wastewater feed to the steam stripper is preheated. The EPA's analysis shows that a steam-to-feed ratio of 0.04 kilograms of steam per kilogram of wastewater is sufficient to achieve the required performance.

<u>Comment</u>: One commenter (A-90-19: IV-D-32) expressed several concerns with the EPA's current design and stated that the EPA must correct the inconsistency between the number of theoretical and physical trays required for the steam stripper in the proposed rule. Based on an 80 percent tray efficiency, the commenter (A-90-19: IV-D-32) calculated that 13 physical trays instead of 10 physical trays, as stated in the proposed rule, would be required for a steam stripper with ten theoretical stages.

<u>Response</u>: The EPA agrees with the commenter and has corrected the inconsistency in the proposed rule. The final rule requires 10 actual trays, assuming a 30-percent tray efficiency.

<u>Comment</u>: One commenter (A-90-19: IV-D-32) disagreed with the EPA's assumption of an 80-percent tray efficiency in the RCT design stripper, stating that it overestimates stripping performance. The commenter (A-90-19: IV-D-32) stated that Dr. James Fair of the Department of Chemical Engineering at the University of Texas at Austin was contracted to calculate tray efficiencies for each HAP listed in table 9 of subpart G using the Kremser equation. The commenter (A-90-19: IV-D-32) included the tray efficiency estimates in appendix K of the comment letter. The commenter (A-90-19: IV-D-32) stated that the EPA may have overlooked the possibility that tray efficiency is a function of the vapor/liquid ratio. The commenter (A-90-19: IV-D-32) contended that to achieve the EPA's target strippabilities for less-strippable HAP's, a bigger column and more steam would be required, thus, increasing both capital and operating costs of the steam stripper.

Response: The EPA agrees with the commenter that a tray efficiency of 80 percent is too high, and the EPA has revised the design steam stripper to include a tray efficiency of 30 percent. Three theoretical trays are required to achieve the target removal efficiencies, and therefore, ten actual trays are required to achieve the target removal efficiencies. The revised capital and annual costs were both based on a steam stripping column with ten actual trays. Therefore, a bigger column and more steam are not required, and the capital and annual costs are not underestimated.

Furthermore, the commenter (A-90-19: IV-D-32) did not provide tray efficiencies for each compound; appendix K only provides data on the tray efficiency for toluene. The EPA had to consider the tray efficiency of every table 9 compound in their analysis.

Comment: One commenter (A-90-19: IV-D-32) suggested that the EPA specify the number of theoretical "stages" rather than the number of trays in §63.138(f)(2) because this approach would be more consistent with design terminology for steam strippers.

Response: The EPA intended to specify 10 actual trays, not 10 theoretical trays as is found in §63.138(f)(2) of the proposed regulation [§63.138(g)(2) of the final provisions]. When specifying theoretical trays, the term "theoretical stages" is often used. However, in the final regulation, §63.138(g)(2) specifies 10 actual trays. The EPA has chosen to use the term "trays" instead of "stages" to clarify that §63.138(g)(2) requires the design steam stripper to have 10 actual, not theoretical, trays.

2.1.6.2 Condenser

Comment: One commenter (A-90-19: IV-D-32) stated that the EPA should not specify the type of condenser used for the RCT steam stripper in §63.138(f)(6) of the proposed rule because downstream vapor control requirements ensure that emissions from the primary condenser will be controlled.

One commenter (A-90-19: IV-D-78) reasoned that the EPA should specify the vapor temperature at the outlet of the final steam stripper overheads condenser, since some steam strippers will have a series of overheads condensers.

Response: The EPA has deleted the specification for a condenser from §63.138(f) of the proposed rule (i.e., §63.138(g) of the final rule). If a primary condenser is used as part of a steam stripper, the non-condensible gas stream from the primary condenser must be controlled per the requirements of §63.138(i).

Comment: One commenter (A-90-23: IV-D-20) stated that in §63.138(f)(6) of the proposed rule, the steam stripper requirements should not require the use of a water-cooled condenser because refrigerated condensers can achieve the same results.

Response: Although the design steam stripper defined by §63.138(g) did require a specific type of condenser, the EPA has reviewed public comments and concluded that any air pollution control device, including but not limited to a condenser, is allowable under the final rule as long as the steam stripper achieves all emission control requirements required in §63.138(i).

Comment: One commenter (A-90-23: IV-D-18) suggested that the EPA remove from tables 8 and 9 in proposed §63.131 all chemicals that have boiling points less than 50 ^{o}C, because the condenser of the design steam stripper will not be able to liquify the vapor emitted from the steam stripper. The commenter (A-90-23: IV-D-18) stated that the design steam stripper would evaporate those HAP's with boiling points less than 50 ^{o}C directly into the air without any reduction in air emissions.

Response: The intention of the design steam stripper provisions in §63.138(g) of the final rule is not to allow HAP's removed from wastewater by steam stripping to be emitted to the atmosphere. The regulation requires control of these emissions, as specified in §63.138(i). Therefore, rather than removing chemicals with boiling points below 50 ^{o}C, as suggested, the condenser requirement in proposed §63.138(f)(6) has been removed. However, the owner or operator must comply with §63.138(i) of the final rule, which specifies options for controlling the emissions from the steam stripper overheads primary condenser.

2.1.6.3 Steam-to-Feed Ratio

Comment: One commenter (A-90-19: IV-D-32) stated that the steam-to-feed ratio and liquid loading of steam strippers will depend on site-specific design and operating conditions. The commenter (A-90-19: IV-D-32) provided information [in appendix M of the comment letter (letter from B. Davis to J. Meyer, April 1, 1993)], which indicates that the steam-to-feed ratio will vary depending on the chemicals, their concentrations, and the operating pressure of the tower.

Response: The steam-to-feed ratio and the liquid loading specified in §63.138(g)(3) and (g)(5) of the final rule will achieve the required performance levels under the conditions specified for the design steam stripper in §63.138(g) of the final rule. However, some facilities may choose to install a steam stripper design other than that specified in §63.138(g). For example, an owner or operator may choose to install a packed column rather than a tray column, or operate the steam stripper under vacuum. Any steam stripper design is allowed under the wastewater provisions as long as it meets the performance criteria of the RCT. However, for any steam stripper not consistent with the design and operating requirements in §63.138(g), the owner or operator must demonstrate compliance with the required performance levels.

A compliance demonstration is not required if the steam stripper meets the provisions of §63.138(g).

2.1.7 Biological Treatment System Specifications

Comment: One commenter (A-90-19: IV-D-34) recommended general guidelines for a well-operated biological system including the use of maximum or minimum limits instead of ranges, the specification of operating parameters that are controllable or can be modified to meet MACT, the elimination of redundant or conflicting parameters such as food-to-microorganisms ratio and sludge age, the use of typical operating conditions for existing sources, and the control of new sources with more stringent designs.

Response: The commenter (A-90-19: IV-D-34) provided only a general set of qualitative guidelines, but provided no numerical data or suggestions regarding how these general guidelines could be used in the HON. Neither did the commenter (A-90-19: IV-D-34) provide information regarding the HAP emission reductions that would result from implementing such guidelines. In order to assess the feasibility of implementing the general guidelines suggested by the commenter (A-90-19: IV-D-34), the EPA requires data, as requested in the preamble to the proposed regulation. Without data to support the general guidelines suggested by the commenter (A-90-19: IV-D-34), it is not possible for the EPA to implement these guidelines into the final regulation.

2.2 OTHER CONTROL REQUIREMENTS

Comment: One commenter (A-90-19: IV-D-32) recommended that the EPA develop a definition of an emissions-suppressed wastewater collection and treatment system and include the following system components: individual drains fitted with s-traps and p-traps; junction boxes with water seals; junction boxes that are flooded to eliminate flow of air from inlets; covered drop boxes and lift stations where splashing may occur; and covered treatment and storage tanks. The commenter

(A-90-19: IV-D-32) provided several figures illustrating the components of an emissions-suppressed collection system and included component data in appendix P of the comment letter that were collected by Enviromega for CMA (1993, Measurement of Hazardous Air Pollutant Emissions from Drop Structures and Process Drains, Burlington, Ontario), which indicated that a suppressed collection system consisting of these components would decrease HAP emissions from wastewater.

Response: The EPA agrees that a suppressed wastewater collection and treatment system will decrease organic HAP emissions from wastewater. Emissions suppression of the wastewater collection and treatment system is the result of applying covers and water seal controls on the individual components of the wastewater collection and treatment system. The terms "cover" and "water seal controls" are defined in §63.111 of the regulation. The term "emissions-suppressed wastewater collection and treatment system" has not been added to the final regulation because separate requirements for individual wastewater collection and treatment components are detailed in the regulation. These requirements apply only to those individual wastewater collection and treatment components which receive, manage, or treat Group 1 wastewater streams or residuals removed from Group 1 streams. The issue of flooded sewers is addressed in section 2.2.2 of this BID volume.

Comment: One commenter (A-90-19: IV-D-64) stated that in §63.136(c)(1) in the proposed rule the second sentence should be changed to read, "for each drain using a p-trap or s-trap, the owner or operator shall maintain a water seal in the p-trap or s-trap" and the remainder of the paragraph should be deleted. The commenter (A-90-19: IV-D-64) stated that the purpose for established operating practices is to maintain a water level in these traps. The commenter (A-90-19: IV-D-64) contended that the examples in the proposed HON are unreasonable and that SOCMI sources should be responsible for failure to operate equipment properly.

Response: The EPA contends that maintaining water in a p-trap or s-trap will ensure that a water seal will be maintained in a p-trap or s-trap, thus preventing emissions to the atmosphere. Furthermore, for monitoring purposes, an owner or operator must ensure that water is maintained in the trap either by visual inspection of the trap or by an alternative means. Maintaining continuous water flow to the trap is only one example of how an owner or operator would ensure that there is water in the trap. The owner or operator may monitor traps in numerous other ways if continuous flow is unreasonable for the particular situation.

Comment: One commenter (A-90-19: IV-F-1.2 and IV-F-4) stated that the EPA has presented no valid data for its claim that additional environmental benefits can be derived by requiring an enclosed collection system prior to steam stripping. The commenter (A-90-19: IV-F-1.2 and IV-F-4) claimed that the EPA could not justify the additional cost of using an enclosed collection system and a design steam stripper instead of using a biological treatment system.

Response: Estimates conducted by the EPA based on several studies indicate that significant volatilization of organic HAP's occurs from unenclosed collection systems. The final wastewater provisions are based on cost-effective control of HAP emissions from wastewater assuming that the Group 1 wastewater streams are hard-piped to a steam stripper. Enclosed individual drain systems are allowed as an alternative control approach that can be combined with any treatment device, including biological treatment units, that meets the required treatment level. A biological treatment system without an enclosed individual drain system is the baseline level of control that results in significant HAP emissions.

Comment: One commenter (A-90-19: IV-D-64) stated that in §63.138(h)(3)(i), the EPA should not require that every cover on a treatment process or waste management unit have a vent. The commenter (A-90-19: IV-D-64) stated that the paragraph should require that each opening from the treatment process or waste management unit be covered, and any opening, treatment process, or management unit that is vented should be covered.

Response: The EPA disagrees with the commenter (A-90-19: IV-D-64) that the provisions in §63.138(h)(3)(i) of the proposed rule be changed. Any treatment process or waste management unit requiring control that is covered shall also be vented to a control device to control HAP emissions from the vapors in the treatment process or waste management unit.

Comment: One commenter (A-90-19: IV-D-73) claimed that the requirements in §63.136(c)(2) to cover junction boxes, and if the junction boxes are vented, to have a vent pipe of certain dimensions, do not serve any emission control purpose since this subsection deals with water-sealed drain systems. One commenter (A-90-23: IV-D-9) claimed that the requirements to cover and treat emissions from wastewater management tanks would be costly for biological treatment units and would offer little emissions benefits. The commenter (A-90-23: IV-D-9) said that adopting biological treatment as an RCT would eliminate the requirements to cover these units.

Response: The basis for the commenter's claim is unclear. Provisions for drains are stated in §63.136(e)(1), not §63.136(c)(2), as suggested by the commenter. The provisions for junction boxes are stated separately in §63.136(e)(2). Only junction boxes receiving Group 1 process wastewater streams must be covered.

The EPA clarifies that, although the proposed rule and final rule allow biological treatment to be used, equipment used to receive, manage, or treat Group 1 process wastewater streams must meet the provisions of §63.133 through §63.137 for covering the units and venting HAP emissions to a control device.

A properly operated biological treatment unit which meets the mass removal requirements of §63.138(b)(1)(iii)(C) or §63.138(c)(1)(iii)(D) or meets the 95-percent HAP mass reduction requirements of §63.138(e) need not be covered and vented to a control device.

Comment: One commenter (A-90-23: IV-D-2) suggested that covering surface impoundments and individual drain systems may cause fire, explosion, and confined-entry danger. Another commenter (A-90-19: IV-D-45) stated that organic vapors from wastewater, which are trapped inside tanks with fixed lids, may pose a major explosion hazard.

Response: The EPA agrees that covering surface impoundments may cause fire and explosion danger if the cover and closed-vent system are incorrectly designed. The EPA also agrees that the incorrect and unsafe use of fixed roof tanks for storage or treatment of wastewater may pose the risk of fire or explosion. However, the EPA anticipates that facilities will avoid such unsafe conditions in specifying and designing these systems. Most individual drain systems currently exist as subsurface structures with the potential for explosive vapor buildup. The EPA does not anticipate that covering individual drain systems and venting them to a closed-vent control system will import additional risk of fire or explosion greater than that which may currently exist. Confined-entry areas currently exist in most wastewater systems. The EPA does not anticipate that covering individual drain systems and surface impoundments will significantly increase confined-space entry hazards at typical SOCMI facilities.

Comment: One commenter (A-90-19: IV-D-92) disagreed with the requirements to cover surface impoundments claiming that the covers would be very costly and that this requirement would produce little environmental benefit. The commenter (A-90-19: IV-D-92) claimed that it is unlikely that wastewaters with high concentrations of HAP's would be stored in surface impoundments, because of RCRA prohibitions of using surface impoundments to store hazardous waste or hazardous wastewater.

Response: The EPA clarifies that RCRA does not prohibit the use of surface impoundments for the storage or treatment of hazardous wastes, but does require that these surface impoundments be equipped with a double liner. Emissions estimates made by the EPA indicate that surface impoundments are significant emission sources. Therefore, the requirement to cover surface impoundments receiving Group 1 wastewater streams is retained in the final rule.

Because RCRA requires surface impoundments which receive hazardous wastes to be double lined, and requires monitoring to detect leaks, many facilities have replaced their surface impoundments with tanks. Similarly, the EPA anticipates that owners or operators will not place Group 1 wastewater streams into surface impoundments if alternative devices, such as tanks or containers, are more cost effective to collect and/or treat Group 1 wastewater streams.

Comment: One commenter (A-90-23: IV-D-9) claimed that separate treatment equipment should not be required for each stream because most sources have a centralized treatment system.

Response: The EPA clarifies that separate treatment of each Group 1 wastewater stream is not required by the HON. Streams may be combined for more efficient and cost effective treatment.

2.2.1 Clarification of Requirements for Control Devices

Comment: One commenter (A-90-19: IV-D-32) stated that §63.139(h)(1) and (2) in the proposed rule, which require flow monitoring or a locked valve on bypasses, should be modified to exempt emergency relief valves from these bypass requirements.

Response: The EPA clarifies that emergency relief devices are not subject to requirements for car seals, locked valves, and flow monitoring.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-54) stated that §63.139(c)(2) should be expanded to allow scrubbers, particularly scrubbers controlling non-halogenated gas streams, to show compliance through the use of design analysis as an alternative to performance testing.

Response: The provisions in §63.139 apply to control devices used to control the organic vapors removed from Group 1 wastewater streams. In response to comments, the EPA has added specific language into §63.139 of the final rule which allows the use of scrubbers as a control device. Scrubbers could also be used in the proposed rule under the general allowance in §63.139(c)(4), which is paragraph (c)(5) in the final rule. In the final rule, the EPA specifies that if a scrubber is used it must achieve 95 percent by weight destruction of HAP's by chemical reaction with the scrubbing liquid.

The EPA has added a new paragraph (c)(4) to §63.139 which reads:

> A scrubber shall reduce the total organic compound emissions, less methane and ethane, or total organic HAP emissions in such a manner that 95 weight percent is destroyed by chemical reaction with the scrubbing liquid.

Additionally, in §63.139(d)(2)(vii), the EPA has added the following:

> For a scrubber, the design evaluation shall consider the vent stream composition; constituent concentrations; liquid-to-vapor ratio; scrubbing liquid flow rate and composition; temperature; and the reaction kinetics of the constituents with the scrubbing liquid. The design evaluation shall establish the design exhaust vent stream organic

compound concentration level and will include the additional information in paragraph (d)(2)(vii)(A) of this section for a tray column scrubber or paragraph (d)(2)(vii)(B) of this section for a packed column scrubber.

(A) Type and total number of theoretical and actual trays;

(B) Type and total surface area of packing for entire column, and for individual packed sections if column contains more than one packed section.

This language parallels the requirements of §63.139(d)(2)(iv), (v), and (vi) for the other control devices.

Comment: One commenter (A-90-19: IV-D-54) stated that emission control devices installed to comply with the provisions for closed-vent systems and control devices (§63.139) and that are located upstream of an RCT (e.g., flare) device should not be subject to testing and monitoring requirements. The commenter (A-90-19: IV-D-54) contended that for controls in series, only testing at the outlet of the train of the control system should be required, and only monitoring which is necessary to ensure performance of the overall train of control systems should be required.

Response: The requirements of §63.139 are not intended to mean that a separate performance demonstration is required for each individual control device operated in a series. A facility must comply with only one of the four paragraphs under §63.139(c) of the final rule. If compliance is achieved with one of the control devices in a series, then compliance need only be demonstrated for that one device.

Another option would be to demonstrate the reduction of the total organic compound emissions, less methane and ethane, or total organic HAP emissions by 95 weight percent or greater. This could be done across a single control device or across a series of control devices. However, control devices in series, up to and including the control devices which achieves compliance with §63.139(c), are subject to

§63.139(d), (e), and (f). Any control device or series of control devices located after the control device where the owner or operator demonstrates compliance is not subject to either §63.139 or the inspection and monitoring requirements in §63.143 because such a control device or series of control devices achieves reductions in excess of the requirements of §63.139(c).

The owner or operator need only monitor those control devices in series which are used to comply with §63.139. As an option to show compliance with §63.139, the owner or operator may install an organic monitoring device at the outlet of the control device in accordance with §63.143(e)(2). The owner or operator may also request approval from the implementing agency per §63.143(e)(3) to monitor parameters other than those specified in §63.143(e)(1) or (2).

The EPA clarifies that regardless of how the owner or operator chooses to comply with the monitoring requirements in §63.143, the owner or operator must establish, for each parameter monitored, a range that indicates proper operation of the closed-vent system.

2.2.2 Water Seal Controls

Comment: One commenter (A-90-23: IV-D-14) claimed that the HON definition of "water seal controls" is different than the definition in the Benzene Waste NESHAP. The commenter (A-90-23: IV-D-14) recommended adding to the HON definition the specifications from the Benzene Waste NESHAP, which state that "the water level of the seal must be maintained in the vertical leg of a drain in order to be considered a water seal."

Response: The EPA has changed the proposed definition of "water seal controls" in §63.111 of subpart G of the final rule. The EPA agrees with the commenter that the definition in the Benzene Waste NESHAP and the HON should be the same, and has therefore amended definition as follows:

"Water seal controls means a seal pot, p-leg trap, or other type of trap filled with water (e.g., flooded sewers that maintain water levels adequate to prevent air flow through the system) that creates a water barrier between the water level of the seal and the atmosphere. The water level of the seal must be maintained in the vertical leg of a drain in order to be considered a water seal."

The objective of the controls specified for drains and junction boxes in an individual drain system is to isolate them such that the free flow of vapors within the system is prevented. By including additional examples in the final rule, the EPA has clarified that other types of water seals such as flooded sewers also are acceptable.

2.2.3 Definition of "Cover"

Comment: Two commenters (A-90-19: IV-D-90; IV-D-100) requested that the EPA include a definition of "cover" in the wastewater provisions.

Response: The EPA has added the following definition of "cover" to §63.111 of subpart G to clarify the term as it is used throughout the wastewater provisions:

> Cover, as used in the wastewater provisions, means a device or system which is placed on or over a waste management unit containing wastewater or residuals so that the entire surface area is enclosed and sealed to minimize air emissions. A cover may have openings necessary for operation, inspection, and maintenance of the waste management unit such as access hatches, sampling ports, and gauge wells provided that each opening is closed and sealed when not in use. Examples of covers include a fixed roof installed on a wastewater tank, a lid installed on a container, and an air-supported enclosure installed over a waste management unit.

2.2.4 Submerged Fill Pipes

Comment: Two commenters (A-90-19: IV-D-86; IV-D-32) stated that the proposed provisions in §§63.135(c)(1) and (2), which require the use of submerged fill pipes for filling a container with residuals should be deleted because wastewater residuals such as sludge may clog the outlet of the fill pipe.

Response: The EPA agrees that the use of submerged fill pipes for viscous materials may be difficult because the thick material may clog the pipe. In developing the final rule, the EPA reconsidered the use of submerged fill and has changed the requirements. Submerged filing is required for containers with a capacity of 0.42 m^3 or greater that are filled by pumping the Group 1 wastewater or residual. The HAP emissions generated by filling containers warrants the use of submerged fill pipes.

Comment: One commenter (A-90-19: IV-D-32) contended that the proposed emission control requirement for containers in §§63.135(d)(1) through (3), which requires that treatment in a container (including aeration, thermal, or other treatment) be conducted within an enclosure with a closed-vent system that is routed to a control device, discourages treatment in containers. The commenter (A-90-19: IV-D-32) stated that treatment in containers provides environmental and safety benefits with little potential for emissions. The commenter (A-90-19: IV-D-32) stated that the proposed control requirement will complicate such management methods to the point that some facilities may decide to omit the treatment step. The commenter (A-90-19: IV-D-32) suggested that if this requirement is retained in the rule, it should apply only to treatment in containers that is shown to cause significant HAP emissions.

Response: The EPA maintains that whenever it is necessary for a container to be open, treatment in a container of a Group 1 wastewater stream or residual removed from a Group 1 wastewater stream, must be conducted within an enclosure with a closed-vent system that is routed to a control device. If the container is not open and cannot emit HAP's, then the container is not required to be within an enclosure with a closed-vent system that is routed to a control device. The commenter provided no data to substantiate their statement that treatment in containers provides little potential for emissions.

Comment: One commenter (A-90-23: IV-D-18) opposed the EPA's proposal to require the filling of tanks and containers using a submerged fill pipe that must extend within two pipe diameters of the bottom of the vessel being filled. The commenter (A-90-23: IV-D-18) has developed corporate-wide mechanical piping standards that require a distance of 6 inches to prevent undue wear to the vessel during filling using a 2-inch submerged pipe. In addition, the commenter (A-90-19: IV-D-18) stated that a submerged fill pipe that is too close to the bottom of a tank will impart a sideways force on the pipe, deflecting the fill pipe sideways with a potential of the pipe breaking off due to this movement. The commenter (A-90-23: IV-D-18) requested that the EPA allow three fill pipe diameters instead of two.

Response: The EPA clarifies that the filling of tanks does not require the use of a submerged fill pipe. The EPA has re-evaluated the requirement that submerged fill pipes must be located within two pipe diameters of the bottom of the vessel being filled. In the final rule, the EPA is allowing submerged fill pipes to be located no more than 6 inches or two pipe diameters from the bottom of the container and has deleted the requirement for submerged fill for containers less than 0.42 m^3. This will not increase HAP emissions but will provide greater flexibility for industry compliance.

2.2.5 Maintenance Wastewater

Comment: One commenter (A-90-19: IV-D-34) stated that the wastewaters from routine maintenance do not result in significant HAP emissions. The commenter (A-90-19: IV-D-34) stated that one facility roughly estimates that less than 0.05 Mg/yr is lost to the process sewer from pump maintenance. The commenter (A-90-19: IV-D-34) recommended deleting the requirement to control maintenance-turnaround and routine maintenance wastewaters.

Response: It is difficult for the EPA to assess the commenter's data. The commenter who provided an estimate of maintenance wastewater emissions from pump maintenance for only one facility did not provide documentation of the estimate and did not provide an estimate of emissions from other maintenance activities.

The EPA has made a change from the proposed rule so that requirements for routine maintenance and maintenance-turnaround wastewaters are now addressed in the facility's start-up, shutdown, and malfunction plan as was proposed for only maintenance-turnaround wastewaters. Given the variability in maintenance wastewaters and the difficulty in measuring their flow rates and concentrations, the EPA has determined that it is more appropriate for individual facilities to determine site-specific housekeeping procedures to properly manage maintenance wastewater and control organic HAP emissions to the atmosphere from maintenance wastewaters. The requirements to collect and manage routine maintenance wastewaters in a controlled drain system have been eliminated.

Comment: One commenter (A-90-19: IV-D-77) stated that the EPA should include provisions allowing maintenance-related wastewater to bypass the control devices (e.g., design steam stripper) because variable feed composition and dissolved and suspended solids create operational and maintenance problems. The commenter (A-90-19: IV-D-77) suggested that the EPA incorporate an exclusion for five-percent downtime to allow for maintenance of the steam stripper.

Response: The HON does not require maintenance wastewaters to be treated in control devices. The rule only requires that owners or operators include a description of procedures in their start-up, shutdown, and malfunction plan that, when followed, ensure that maintenance wastewaters are properly managed and HAP emissions are minimized. Process wastewater will sometimes have variable feed compositions and dissolved and suspended solids also. Therefore, it is reasonable to assume that facilities will have equipment such as feed tanks and filters already in place to account for composition variation and solids in process wastewater streams. Therefore, if the owner or operator chooses to do so, this same equipment may be used for maintenance wastewater streams.

Furthermore, the wastewater provisions do not require the design steam stripper to operate continuously. If a steam stripper requires repair, wastewaters can be collected in a hold tank and routed to the steam stripper once the repairs are complete. The wastewaters cannot bypass the steam stripper during the repair period.

Comment: Two commenters (A-90-19: IV-D-97) (A-90-23: IV-D-20) recommended that the EPA specify one type of maintenance wastewater, just as there is only one type of process wastewater, and address the management of all maintenance-generated wastewater in each facility's start-up/malfunction plan per §63.102(b)(1)(i) of the proposed rule. Two commenters (A-90-19: IV-D-32; IV-D-75) objected to the requirement that routine maintenance wastewater be collected in a closed system. One commenter (A-90-19: IV-D-75) claimed that the requirement is inconsistent with the Benzene Waste NESHAP which allows the owner or operator to determine if control of these wastewaters is required. Two commenters (A-90-19: IV-D-97) (A-90-23: IV-D-20) stated that maintenance-related wastewater should not be regulated in the same manner as process wastewater (i.e., Group 1/Group 2 determination).

One commenter (A-90-19: IV-D-34) stated that the EPA should clarify one of the management options for maintenance wastewater in §63.102(b)(2)(ii) of the proposed rule, which specifies that the maintenance wastewater can be collected and managed in a controlled drain system. The commenter (A-90-19: IV-D-34) expressed concern that because the EPA has not defined a "controlled drain system," requirements for managing maintenance wastewater could be interpreted to mean that maintenance wastewater must be collected and managed in a drain system that meets the requirements of §63.133 through §63.140. The commenter (A-90-19: IV-D-34) contended that the preamble to the proposed rule (57 FR 62677-8), which states that routine maintenance wastewater will be controlled using general procedures contained in a start-up, shut-down, and malfunction plan, does not seem to be consistent with the possible interpretations of "controlled drain system." The commenter (A-90-19: IV-D-34) requested that the EPA restate the rule to be consistent with the concepts discussed in the preamble.

One commenter (A-90-19: IV-D-73) recommended that routine maintenance wastewaters and wastewaters generated during shutdown be subject to the same requirements and also suggested dealing with maintenance and shutdown wastewaters using one site-specific plan. The commenter (A-90-19: IV-D-73) claimed that volume and hydrocarbon content need to be considered before controlling maintenance wastewater and that the requirement for routine maintenance wastewater to be collected and recycled, destroyed, or collected and managed in a controlled drain is not related to developing a maintenance wastewater plan. One commenter (A-90-19: IV-D-33) expressed concern that in §63.102(b)(1)(ii) of the proposed rule, which requires that routine maintenance wastewaters are either collected and recycled or are destroyed or are collected and managed in a controlled drain system, seems to require a special procedure and system to manage such wastewater. The commenter (A-90-19: IV-D-33) stated that most wastewaters, both routinely and non-routinely generated, are handled through the same systems pursuant to CWA requirements and that the EPA should not require special systems to handle only maintenance wastewater subject to the HON.

Response: The requirements for routine maintenance wastewaters have been revised. Routine maintenance wastewater and maintenance-turnaround wastewater as defined in §63.101 of the proposed rule will now both be referred to as "maintenance wastewater" as defined in §63.101 of subpart F. Both types of maintenance wastewater are now subject to the requirements proposed for maintenance-turnaround wastewater. The requirements for all maintenance wastewaters are addressed in the facility's start-up, shutdown, and malfunction plan. Routine maintenance wastewaters are no longer required to be collected and recycled, destroyed, or collected and managed in a controlled drain system as specified in §63.102(b)(1)(ii) of the proposed rule. The owner or operator must only specify the procedures that will be followed to properly manage maintenance wastewater and minimize HAP emissions from maintenance wastewater. All maintenance wastewater can be handled in the same sewer systems.

The Benzene Waste NESHAP requires control of wastewaters with a concentration greater than 10 ppmw if the facility total annual benzene (TAB) is 10 megagrams per year or greater. The requirements do not allow the owner or operator to determine if control of maintenance wastewater is required.

It is assumed that the commenter means routine maintenance wastewater when referring to maintenance-related wastewater. As stated above, routine maintenance wastewater is not subject to the same requirements as process wastewater.

Comment: One commenter (A-90-23: IV-D-20) stated that compliance with an NPDES permit for a SOCMI facility should be sufficient to treat maintenance-related wastewater. Therefore, the commenter (A-90-23: IV-D-20) recommended that requirements for all maintenance-related wastewater streams be eliminated from the HON.

Response: An NPDES permit only specifies the amount of organics that may be present in the wastewater before it is discharged from the facility. These permits do not limit the air emissions that can be released from wastewater prior to their discharge from the facility. Therefore, compliance with an NPDES permit is not sufficient to reduce air emissions from maintenance wastewater. The HON requirements for maintenance wastewater are now listed in §63.105 of subpart F and ensure that maintenance wastewater will be properly managed and HAP emissions to the air from these wastewaters will be controlled.

2.2.6 Control of Steam Stripper Overheads

Comment: One commenter (A-90-19: IV-D-85) stated that the control device at the end of the process should be required to meet at least a 98-percent reduction standard, and that the EPA should conduct an analysis assuming 98 percent control of stripped organics.

Response: The EPA assumes that the commenter means the overheads from the steam stripper when referring to "the end of the process." The EPA requires that the HAP emissions from the steam stripper overheads primary condenser to be reduced by 95 percent. The EPA allows the use of recovery devices such as secondary condensers and carbon adsorbers to recover the overheads from the steam stripper, and these devices may not be able to achieve a 98 percent reduction. Recovery devices typically achieve removal efficiencies of 95 percent, and therefore, combustion would be required to achieve removal efficiencies of 98 percent for many compounds. Requiring a 98-percent control of stripped organics would discourage resource recovery, because many of the overhead streams would have to be treated by combustion.

LIST OF TABLES

3.0 IMPACTS ANALYSIS

3.1 COST ANALYSIS

Comment: One commenter (A-90-19: IV-D-85) supported the EPA's cost analysis for justifying steam stripping as RCT and stated that the EPA justified the cost of steam stripping in 1987 while establishing effluent limitations for OCPSF regulations (52 FR 42561). The commenter (A-90-19: IV-D-85) stated that if further cost comparisons are made between steam stripping and biological treatment, section 112(d) of the Act requires the EPA to consider both the air and water quality benefits that could be achieved by each treatment technology.

Response: The EPA based effluent limitations and compliance costs for OCPSF regulations on steam stripping with product recovery and justified the cost of steam stripping in the OCPSF regulation. The EPA has determined that the cost estimate in the HON represents the true cost of installing and operating a steam stripper. The cost impacts for controlling wastewater for the HON are based on steam stripping and are presented in section IV.C of the preamble to the final rule. If further cost comparisons are made between biological treatment and steam stripping, the EPA will consider air and water quality benefits, along with energy impacts, NO_X emissions, CO emissions, and solid waste generation.

Comment: One commenter (A-90-23: IV-D-17) claimed that the EPA's estimate of TCI for a steam stripper was several orders of magnitude too low. The commenter (A-90-23: IV-D-17) provided an attachment indicating that the TCI for a steam stripper is $3,456,200, and listed several reasons why the EPA's estimate of TCI is lower.

Response: The EPA's estimate of the steam stripper TCI was based on published data and vendor information. The TCI is composed of the BEC, the PEC, and direct and indirect installation costs. The BEC that was estimated by the EPA differs from the estimate provided by the commenter by less than 20 percent. However, the PEC and the indirect and direct installation costs estimated by the commenter are 44 to 91 percent larger than those estimated by the EPA. According to the Office of Air Quality Planning and Standards Control Cost Manual (OCCM), the PEC and the direct and indirect installation costs are based on the BEC. In the EPA's estimate of TCI, the components of the PEC, and the direct and indirect installation costs are represented as a percentage of the BEC as published in the OCCM. The estimates from the OCCM are accurate to within ± 30 percent. The commenter's estimates of PEC and direct and indirect installation costs do not agree with the guidelines presented in the OCCM. The commenter listed significantly larger engineering costs and direct installation costs, and these estimates are not representative of typical costs. The commenter (A-90-23: IV-D-17) did not provide support for these higher costs.

Comment: Two commenters (A-90-19: IV-D-77; IV-D-110) stated that the EPA should account for the costs associated with adding a steam stripper to an existing facility with limited space or requiring installation in a remote location.

Response: When developing regulatory options, the EPA must consider impacts on a nationwide basis. Therefore, cost-effectiveness for control of wastewater for the regulatory option chosen ($495/ton for new and existing sources in the fifth year) represents a nationwide estimate. Estimates are based on control equipment arrangements that are most common in the industry. Most facilities using a steam stripper to control wastewater streams will have adequate space and will not have to install the steam stripper in a remote location. Therefore, these types of facility-specific cost considerations were not accounted for in the HON impacts analysis. If the use of a steam stripper is not cost-effective for a particular facility, §63.138 includes several other alternatives the facility can use to comply with the regulation, including biological treatment.

Comment: One commenter (A-90-19: IV-D-98) stated that the costs associated with enclosing a wastewater treatment plant to avoid installing expensive internal piping and process changes is not a cost-effective option for facilities with multi-acre wastewater treatment lagoons.

Response: The impacts analysis done by the EPA indicated that control of Group 1 wastewater streams using steam stripping is cost-effective. Therefore, facilities have the option to use steam stripping for control of Group 1 wastewater streams. Covering smaller lagoons or surface impoundments may also be cost-effective for some facilities. However, covering larger wastewater lagoons or other surface impoundments may not be cost-effective for every facility, and most facilities will not opt to cover multi-acre wastewater lagoons. Such facilities can select another one of the compliance options described in §63.138 of the wastewater provisions in subpart G.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-62) stated that biological treatment could be a more cost effective option than the steam stripper for biodegradable HAP's. One commenter (A-90-23: IV-D-9) stated that the cost of biological treatment was less than the installation cost of steam stripping for a wide variety of waste streams with low HAP concentrations. The commenter (A-90-23: IV-D-9) claimed that many facilities have invested in pre-treatment facilities for biological treatment units that will need to be abandoned at a great economic loss. The commenter (A-90-23: IV-D-9) stated that steam strippers would offer no advantage over the existing systems in emission reduction.

Response: The EPA allows the use of biological treatment as a compliance option for treating wastewater streams when the biological treatment unit can achieve removal efficiencies at least as high as steam stripping. Therefore, a facility treating a wastewater stream containing highly biodegradable HAP's has the option to use either biological treatment or steam stripping, whichever is more cost-effective. Facilities treating wastewater streams with low HAP concentrations also have the option to use biological treatment if the biological treatment unit can achieve removal efficiencies at least as high as steam stripping. For those wastewater streams where biological treatment cannot achieve removal efficiencies equivalent to steam stripping, the EPA has shown that the installation of a steam stripper is cost-effective.

Comment: One commenter (A-90-19: IV-D-98) concluded that the energy costs associated with wastewater controls appear to be underestimated by at least a factor of 10. The commenter (A-90-19: IV-D-98) stated that the EPA assumes a national energy impact of $5{,}300 \times 10^9$ Btu/yr based on the use of steam stripping in the proposed rule. The commenter (A-90-19: IV-D-98) contended that if only 300 facilities are subject to the HON, the energy estimate would be sufficient to treat only 5 gal/minute/site or less at an expenditure of $50,000 to $100,000 per year.

Response: Based on the options chosen for new and existing sources of wastewater, it was estimated in the proposal preamble that approximately 8,000 liters per minute of wastewater would be controlled at new sources and approximately 27,000 ℓpm of wastewater would be controlled at existing sources. It was also estimated that 89 wastewater streams would be controlled at new sources, and 127 wastewater streams would be controlled at existing sources. It was estimated, based on the enthalpy of water and steam, that the energy required to produce steam for use in the steam stripper is 1.46×10^8 Btu/year/ℓpm of wastewater treated (Memorandum from Chuck Zukor, Radian, to Penny Lassiter, EPA/CPB, *"Development of Secondary Environmental Impact Factors for Steam Stripping Wastewater Streams in the HON,"* January 31, 1992). Therefore, the total energy required for new and existing sources for the final rule to steam strip wastewater is approximately $5{,}100 \times 10^9$ Btu/year.

In the cost analysis done by the EPA, it was determined that steam stripping is cost-effective for the treatment of SOCMI wastewater streams. The cost of the steam required by the steam stripper was included in the calculation of annual cost and was estimated to be $9.26 per megagram (Memorandum from Chris Bagley, Radian, to Mary Tom Kissell, EPA/SDB, *"Steam Costs,"* August 23, 1993). Assuming a heat content of 1,206 Btu per pound, approximately 4.23×10^9 pounds per year of steam are required to steam strip the wastewater streams subject to the HON. This equates to a steam cost of 17.8 million dollars for all facilities subject to the wastewater provisions of the HON.

It is unclear where the commenter (A-90-19: IV-D-98) obtained the cited data. The commenter's estimate of the number of facilities affected by the wastewater provisions of the HON does not agree with the EPA's estimate. However, a steam cost of $50,000 to $100,000 per facility per year for 300 facilities equates to a cost of 15 to 30 million dollars per year for all affected facilities which agrees with the EPA's estimate.

<u>Comment</u>: One commenter (A-90-19: IV-D-85) claimed that the EPA did not consider the cost savings of all the wastewater options when determining cost-effectiveness exemptions. The commenter (A-90-19: IV-D-85) stated that the

EPA should consider the cost savings from pollution prevention and from routing multiple wastewater streams to a single steam stripper.

Response: The EPA did consider the cost savings from combining wastewater streams and routing them to a single steam stripper, because the EPA's cost analysis assumed one steam stripper for each SOCMI facility. If an owner or operator chooses to use pollution prevention techniques, a wastewater stream will not be generated and the facility will not have a control cost. A cost-effectiveness analysis was done only for those facilities that would be required to apply additional controls based on the applicability criteria in the wastewater provisions.

3.1.1 Recycling vs. Disposal of Residuals

Comment: Several commenters (A-90-19: IV-D-32; IV-D-77; IV-D-110) (A-90-23: IV-D-20) stated that the EPA underestimated the cost for steam stripping by incorrectly assuming that SOCMI facilities could recycle HAP's that are collected in the overhead. One commenter (A-90-23: IV-D-17) disagreed with the recovery credit that the EPA included in its estimate of TAC. The commenter (A-90-23: IV-D-17) claimed that the organics in wastewater cannot be reused without further processing because contaminants can interfere with the process.

One commenter (A-90-23: IV-D-17) alleged that TAC may be higher than the EPA has estimated because steam stripper overheads may not be able to be incinerated onsite and may have to be handled as a hazardous waste. Two commenters (A-90-19: IV-D-32; IV-D-77) contended that the disposal costs for residuals may be a significant fraction of total annual operating costs. One commenter (A-90-19: IV-D-110) stated that the EPA should account for the cost of disposing of residuals offsite. Two commenters (A-90-19: IV-D-32) (A-90-23: IV-D-20) stated that the EPA needs to include in its cost analyses the management of the aqueous-phase waste generated by the decanter.

Response: The cost analysis for the proposed rule did not assume that HAP's recovered from the steam stripper overheads were recycled to the process. Rather, the cost analysis for the proposed rule assumed that the recovered VOHAP's are incinerated in a boiler, and thus generate a fuel credit.

The credit for incinerating recovered HAP overheads was eliminated from the total annual cost of the steam stripper for the final rule. However, the annual cost of the steam stripper was not underestimated because the fuel credit only represented approximately 3 percent of the total annual cost. Therefore, eliminating the fuel credit did not greatly affect the total annual cost.

Information submitted to the EPA by the CMA indicated that the residuals from the operation of a steam stripper are managed in one of three ways:

(1) by on-site incineration;

(2) by off-site incineration; or

(3) by recycling to the process.

For simplicity, the CMA suggested that the EPA assume that these three methods are used in equal proportion. Both on-site incineration and recycling to the process generate a fuel or raw material credit for the facility. Off-site incineration generates a waste disposal cost for the facility. It is assumed that the waste disposal cost and fuel and raw material credits cancel each other, so that residuals disposal results in a net cost of zero.

3.1.2 Carbon Steel vs. Stainless Steel

Comment: Two commenters (A-90-19: IV-D-32; IV-D-110) stated that the EPA underestimated the cost of the design steam stripper by using carbon steel as the primary construction material. One commenter (A-90-19: IV-D-32) stated that the EPA should have based the cost on stainless steel.

Response: Based on comments and new information, the EPA has revised the cost of the steam stripper (Memorandum from Kristine Pelt, Radian, to Mary Tom Kissell, EPA/SDB, *"Steam Stripper Total Capital Investment and Total Annual Costs,"* December 1, 1993). The final nationwide impacts are based on the revised costs estimate. The costs of the steam stripping column and trays, the primary condenser, the overheads collection decanter, and the pumps are based on stainless steel construction. The feed preheater cost is based on a carbon steel shell with copper tubing. The cost of the wastewater feed storage tanks was based on carbon steel construction, because these tanks would not contain any materials that would require stainless steel construction (e.g., steam or water at elevated temperatures). Therefore, carbon steel is an adequate material of construction for the feed tanks.

3.1.3 Heat Transfer Coefficient and Heat Exchange System

Comment: Two commenters (A-90-19: IV-D-32) (A-90-23: IV-D-20) stated that the EPA should reevaluate the heat transfer coefficient of 180 Btu/hr per square foot per degree F (Btu/hr • ft^2 • ^oF) for the feed preheater, because the EPA's estimate is too high for use with a shell and tube heat exchanger in aqueous-to-aqueous service. The commenters (A-90-19: IV-D-32) (A-90-23: IV-D-20) also recommended the use of a plate-and-frame heat exchanger, instead of the proposed shell-and-tube exchanger because the latter is only appropriate for wastewaters with no suspended solids. One commenter (A-90-19: IV-D-32) recommended that the EPA re-evaluate the effect that such changes may have on cost.

Response: One heat exchange system vendor contacted by the EPA suggested that a heat transfer coefficient of approximately 180 Btu/hr • ft^2 • ^oF is low unless there is a large amount of fouling. Furthermore, the heat transfer coefficient used by the EPA in the preliminary design calculation for the preheater is slightly less than the range of values recommended by accepted references (M.S. Peters and K.D. Timmerhaus, Plant Design and Economics for Chemical Engineers, 3rd ed., McGraw-Hill Book Co., 1980). Therefore, the information received by the EPA contradicts the information provided by the commenter (A-90-19: IV-D-32). Based on the vendor information and the references cited, the EPA has concluded that the value the EPA used for the heat transfer coefficient is not too high.

According to an article in Chemical Engineering Magazine, shell and tube heat exchangers are less likely to be clogged by particulate matter than plate and frame heat exchangers (J. Boyer and G. Trumpfheller, *"Specification Tips to Maximize Heat Transfer,"* Chemical Engineering, May 1993). Therefore, a shell and tube design is a reasonable basis for the preheater cost.

3.1.4 Use of "Temporary" Tanks

Comment: One commenter (A-90-23: IV-D-20) stated that the EPA should not require the addition of a control technology (e.g., a floating-roof tank) for storage of a wastewater stream during occasional shutdowns of a wastewater treatment unit if the wastewater is hardpiped directly to the treatment unit. The commenter (A-90-23: IV-D-20) provided an example and stated that the cost for compliance with such a provision would be excessive, and should not be imposed. The commenter (A-90-23: IV-D-20) suggested that storage of streams for 14 days or less in temporary storage vessels or vessels that are usually not used for the storage of wastewater should not be subject to control requirements when a wastewater treatment unit is nonfunctional. The commenter (A-90-23: IV-D-20) stated that the facility uses an open pond for storage of wastewater in these situations.

Response: The control cost for wastewater is based on steam stripping, and the EPA assumed in the cost analysis that the facility would install holding tanks upstream of the steam stripper and not hard pipe the wastewater directly to the steam stripper. These holding tanks would be available for temporary storage of wastewater if the steam stripper needed repair, and do not present an excessive cost to the facility. The wastewater stream cannot bypass control during shutdowns of the treatment unit. The wastewater must either be stored until the treatment unit is functional or routed to an alternate treatment unit. It is inherent in the startup, shutdown, and malfunction plan required under §63.6(e)(3) of subpart A of this part that when wastewater is stored in a "temporary" tank because a wastewater tank or treatment unit is non-functional, the "temporary" tank is uncontrolled. The startup, shutdown, and malfunction plan requires repair of wastewater tanks and control equipment as soon as technically feasible because "temporary" tanks are uncontrolled.

3.1.5 Cost of RCRA Permitting

Comment: One commenter (A-90-19: IV-D-98) stated that the EPA should consider the cost of developing and obtaining a BIF permit under 40 CFR part 266 of RCRA in order for SOCMI facilities to incinerate residuals in high-temperature combustion devices.

Response: Information submitted to the EPA indicated that residuals from the operation of a steam stripper are managed in one of three ways: (1) by on-site incineration; (2) by off-site incineration; (3) or by recycling to the process. Therefore, if the cost of on-site incineration is high due to the cost of obtaining a RCRA permit, the facility has two other options for disposing of residuals.

3.2 EMISSION ESTIMATES

Comment: Several commenters (A-90-19: IV-F-1.2 and IV-F-4; IV-D-32; IV-D-75; IV-D-77; IV-D-58; IV-D-108)

(A-90-23: IV-D-9) stated that some compounds (e.g., methanol) in the list of volatile organic HAP's are non-volatile or semi-volatile and are not likely to be emitted during normal wastewater handling and treatment. One commenter (A-90-19: IV-D-97) recommended that the wastewater portion of the HON be limited to only significant streams of truly volatile compounds and that monitoring, recordkeeping, and reporting be minimal considering the small amount of emissions that will be controlled.

Response: The EPA has reviewed its estimates of the volatility of the HAP's subject to the wastewater provisions, which are listed in table 9 of subpart G. Based on this analysis, the following seven compounds have been dropped from the list of HAP's on table 9 of subpart G:

- 2-Chloroacetophenone (532274)
- Aniline (62533)
- o-Cresol (95487)
- 3,3'-Dimethylbenzidine (119937)
- Diethylene glycol diethylether (112367)
- Diethylene glycol dimethylether (111966)
- Ethylene glycol monoethylether acetate (111159)

The EPA's analysis has shown that the remaining 76 compounds, including methanol, are volatile and can potentially be emitted during wastewater handling and treatment.

It is assumed that by "significant streams," the commenter (A-90-19: IV-D-97) means wastewater streams with significant flow rates and significant concentrations. There are flow rate and concentration criteria in the wastewater provisions to ensure that "insignificant" streams will not be subject to the control requirements in the wastewater provisions (i.e., the "insignificant" wastewater streams will not meet the definition of wastewater, or will be Group 2 wastewater). Furthermore, monitoring, recordkeeping, and reporting is only required for wastewater streams that contain volatile organic HAP's and meet the flow rate and concentration criteria. Monitoring, recordkeeping, and reporting are not required for wastewater streams not meeting the definition of wastewater. These are the wastewater streams with the highest emission potential.

Comment: One commenter (A-90-19: IV-D-85) supported the wastewater provisions of the HON, but stated that the EPA may have underestimated the proportion of emissions from wastewater in the SOCMI.

Response: The commenter did not provide any detail regarding reasons why the proportion of organic HAP emissions from wastewater in the SOCMI may have been underestimated. The wastewater emission estimates are based on information obtained from the SOCMI via a section 114 survey and from public comment. Therefore, the EPA maintains that the wastewater emission estimates are representative of the SOCMI.

Comment: Two commenters (A-90-19: IV-F-1.2 and IV-F-4; IV-D-97) stated that the EPA has overestimated total emissions from wastewater operations by including non-volatile and semi-volatile compounds in baseline emission estimates, and by estimating emission reductions from control based on these substances. One commenter (A-90-19: IV-F-1.2 and IV-F-4) asserted that, by incorrectly estimating the removal efficiency of certain compounds and including insignificant wastewater streams in the regulation, the EPA overestimated total emissions from wastewater.

Response: The list of HAP's that is subject to the wastewater provisions of the HON has been revised to include only those HAP's that volatilize from wastewater. Seven compounds have been dropped from the list of HAP's shown in table 9 of subpart G of the proposed rule. The EPA's analysis indicated that the remaining 76 compounds are volatile and can potentially be emitted from wastewater. Baseline emissions and emissions reduction estimates are not greatly affected by including semi-volatile and non-volatile compounds. The EPA calculated baseline emissions using the fraction emitted (Fe) values for each compound and calculated the emission reduction using the fraction removed (Fr) values for each compound. Most of the baseline emissions and emission reductions are generated by the highly volatile compounds (those with the largest Fe and Fr values) that are readily emitted from wastewater during handling operations and that are readily removed from wastewater during treatment operations.

The EPA has revised the estimates for Fe values for the HAP's listed in table 9 of subpart G and has included these values in table 34 of subpart G of the final rule. This analysis indicated that some of the Fe values increased and some of the Fe values decreased. Although compound-specific emissions may change, the total baseline emissions from wastewater would not change. Furthermore, "insignificant" streams will not greatly affect the magnitude of baseline emissions from wastewater, because these streams have low flow rates, low concentrations, or contain low volatility compounds.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-34; IV-D-53; IV-D-54; IV-D-77; IV-D-97; IV-D-110; IV-D-112) (A-90-23: IV-D-20) claimed that the requirements for maintenance wastewater and maintenance-turnaround wastewater are "resource-intensive" compared to the significance of the emissions from these sources. The commenters (A-90-19: IV-D-32; IV-D-34; IV-D-53; IV-D-110; IV-D-112) stated that the EPA has not done an emissions analysis of maintenance and maintenance-turnaround wastewater and has not shown if emissions from these wastewaters are significant. One commenter (A-90-19: IV-D-34) stated that the EPA has not complied with the requirements of §112(d) of the Act for maintenance wastewater, which specifies that the EPA must provide data on emissions, the floor, cost, and environmental impacts. The commenter (A-90-19: IV-D-53) stated that all maintenance and maintenance-turnaround wastewaters should be classified as maintenance wastewaters and exempted from the HON.

One commenter (A-90-23: IV-D-17) favored having a *de minimis* level for maintenance wastewater. The commenter (A-90-23: IV-D-17) claimed that the *de minimis* level should be higher than the 2 Mg/yr level in the Benzene Waste NESHAP because several HAP's may be present in the wastewater.

Response: In the final HON, the EPA continues to regulate maintenance wastewater in a facility's start-up, shutdown, and malfunction plan because the General Provisions in §63.6(e)(1)(i) require that a source be operated in a manor consistent with good air pollution control practices. The EPA has determined that it is appropriate to address the handling of wastewater generated by maintenance activities in a facility's start-up, shutdown, and malfunction plan. The EPA has concluded that the concentration and flow rates of maintenance wastewater streams are extremely difficult to determine. Thus, facility determination of a *de minimis* level for maintenance wastewater and subsequent enforcement would be difficult. The EPA decided that it was more appropriate to require facilities to develop a site-specific plan for reducing emissions from all maintenance-related wastewater, rather than to try to distinguish between which maintenance-related wastewaters should be subject to additional control in the final rule. Therefore, the requirements for routine maintenance wastewater have been changed and are now the same as the requirements proposed for maintenance-turnaround wastewater. Routine maintenance and maintenance-turnaround wastewaters are now both being referred to as "maintenance wastewater." The provisions in proposed §63.102(b)(1)(ii) which required routine maintenance wastewater to be collected and recycled, destroyed, or collected and managed in a closed-drain system have been eliminated. The control requirements for maintenance wastewater are to properly manage and control HAP emissions.   The commenters did not define what was meant by "significant emissions" or "resource-intensive."

The EPA is not required to determine a floor for the control of maintenance wastewater. The Act requires the EPA to ensure that control of maintenance wastewater is at least as stringent as the floor. Because estimating air emissions from maintenance wastewater is difficult, the EPA reduced the control requirements for routine maintenance to wastewater recordkeeping and reporting requirements which are addressed in the start-up, shutdown, and malfunction plan.

Comment: One commenter (A-90-19: IV-D-32) provided the results of a study which examined several different conditions for both drop structure and process drain collection system components. Two commenters (A-90-19: IV-D-32; IV-D-108) stated that the study on drains and drop structures indicated that the EPA overestimated emissions for a number of chemicals and suggested that these chemicals be removed from the HAP lists. One commenter (A-90-19: IV-D-108) stated that the CMA's study on drop/drain systems specifically indicated that methanol was not emitted. The commenter (A-90-19: IV-D-108) stated that methanol volatilized very slowly. The commenter (A-90-19: IV-D-108) claimed that if methanol does not volatilize from drop/drain systems, then it is unlikely that methanol will volatilize in a steam stripper operated at higher temperatures. The commenter (A-90-19: IV-D-108) suggested that only HAP's listed in table 8 of subpart G will be emitted from wastewater collection and treatment.

Response: The cited report presents emissions data on four compounds: 1,4-dichlorobenzene, tetrachloroethylene, trichloroethylene, and toluene. In the study, pilot scale structures were used to simulate full scale operating conditions for drains and drop structures. Based on the results of the study, the EPA revised the emission models for junction boxes, sumps, lift stations and drains to include the assumption that the organic HAP compound vapor phase concentration above the wastewater corresponds to approximately one-half of the saturated vapor concentration. In the proposal analysis, it was assumed that the vapor phase was at equilibrium with the wastewater. The EPA also revised the emission model for junction boxes to be based on a quiescent surface rather than turbulent flow. Emission measurement for drains presented in the study were within approximately six percent of EPA's original estimates.

The revised emission models were used to revise estimates of Fe for junction boxes, open drains, open sumps, and lift stations. Further review of the CMA drop/drain study indicates that the EPA's assumption that water seal controls would be equivalent to hard piping is in error. Based on this finding, the EPA revised the requirements for water seals. In §63.136(e) of the final wastewater provisions if a water seal is used on a drain hub receiving a Group 1 wastewater, the owner or operator shall either extend the drain pipe discharging the wastewater below the liquid surface in the water seal, or install a flexible cap (or other enclosure which restricts wind motion) that encloses the space between the drain discharging the wastewater to the drain hub receiving the wastewater.

Comment: Two commenters (A-90-19: IV-D-75; IV-D-32) provided data indicating that chemicals with Henry's law constants less than 10^{-4} atm/(mole/m^3) have little potential for emissions from wastewater and that this value should be the cutoff for VOHAP's.

One commenter (A-90-19: IV-D-33) stated that the process wastewater provisions in §63.131 should apply only to those chemicals with significant potential for emissions. The commenter (A-90-19: IV-D-33) stated that the range of Fe values for table 8 compounds varies from 0.72 to 0.99, and agreed that these 24 chemicals have a significant emission potential. The commenter (A-90-19: IV-D-33) suggested that all chemicals in table 9 with Fe values less than the lowest Fe value for the 24 table 8 chemicals should be deleted from §63.131(b) table 9 and not be subject to all HAP regulatory requirements.

Response: The EPA has revised the list of HAP's that are included in table 9 of subpart G of the wastewater provisions. In the proposed HON, the EPA identified 83 compounds in table 9 of subpart G to be regulated in the wastewater provisions. These HAP's are a subset of the HAP's regulated by the HON. In selecting the HAP's identified in the proposed table 9, the EPA eliminated compounds that do not exist in water and compounds the EPA determined would be unlikely to be emitted in significant quantities. Another factor that influenced the EPA selection of compounds was the biodegradability and the fraction removed by steam stripping. The lower volatility compounds that were eliminated from the table 9 list are already biodegraded to a significant extent and are not removed to a significant extent by steam stripping. Based on comments received from industry, the EPA re-evaluated the emission estimates. Changes were made to the emission models and new scenarios were developed. Based on these revisions, new emission estimates were calculated. The EPA reviewed the new values and decided to eliminate seven additional compounds that were on proposed table 9 of subpart G based upon the same criteria used to develop the proposed table 9 list. Therefore, these 76 compounds are included in table 9 of subpart G and are subject to the wastewater provisions of the HON.

Comment: One commenter (A-90-19: IV-D-34) stated that the EPA has not established a sound technical basis for the cutoff range of table 9 organic HAP's. The commenter (A-90-19: IV-D-34) stated that the EPA should use ambient conditions at 25 ^{o}C to determine a compound's volatility for the purpose of estimating emissions rather than using steam stripper operating conditions at 100 ^{o}C. The commenter (A-90-19: IV-D-34) provided a list of compounds including methanol, which are miscible in water or have a Henry's law constant less than $2x10^{-5}$ atm/(mole/m^3) and stated that such compounds should be removed from tables 9, 11, 13, and 33.

Response: For the HON analysis, the EPA did not use steam stripper operating conditions at 100 ^{o}C to estimate organic HAP emissions from wastewater. Rather, the wastewater temperature was assumed to be 30 ^{o}C and Henry's law constants at 30 ^{o}C were used for the purpose of estimating organic HAP emissions from wastewater.

The commenter provided no technical basis, other than compound volatility, for deleting from the wastewater provisions of the HON those compounds with a Henry's law constant less than $2x10^{-5}$ atm/(mole/m^3). There are other factors which must be considered in excluding compounds from the regulation, including the compound's potential to be emitted as indicated by the Fe value.

The revised emission estimates completed by the EPA show that removing compounds with a Henry's law value less than $2x10^{-5}$ atm/(mole/m^3) from the list of regulated organic HAP's would result in regulation of only those organic HAP's with Fe values greater than 20 percent. To revise the list of organic HAP's as suggested by the commenter would result in nine additional organic HAP's being removed from table 9 of subpart G, all of which have the potential to be emitted from wastewater. Therefore, the EPA has not revised the list of regulated HAP's as suggested by the commenters. As discussed in a previous response, the EPA has removed seven HAP's from the list of table 9 HAP's.

Comment: One commenter (A-90-19: IV-D-108) claimed that methanol is not strippable but is, according to WATER7, highly biodegradable. One commenter (A-90-19: IV-D-92) stated that water-soluble HAP's cannot be effectively removed by steam stripping, making it unlikely that such HAP's would volatilize in wastewater collection and treatment systems. One commenter (A-90-23: IV-D-18) stated that aqueous methanol solutions do not readily volatilize because of the hydrogen bonding that occurs between the -OH radicals of water and methanol and consequently cannot be stripped to the level indicated in table 33 (i.e., 0.829).

Response: Methanol can be removed from wastewater by steam stripping. According to revised estimates made by the EPA, the design steam stripper removal efficiency for methanol is 31 percent (Fr = 0.31) (Memorandum from Clark Allen, Research Triangle Institute, to Elaine Manning, EPA/CPB, *"Efficiency of Steam Stripper Trays to Treat Wastewater Streams: Prediction of the Fraction Removed (Fr) for Specific Compounds,"* January 7, 1994). Water soluble compounds, including HAP's, are stripped from wastewater and are concentrated in the overheads vent stream. Revised estimates completed by the EPA also indicate that water soluble compounds, including HAP's, are emitted from wastewater (Memorandum from Clark Allen, Research Triangle Institute, to Elaine Manning, EPA/CPB, *"Estimation of Air Emissions from Model Wastewater Collection and Treatment Plants,"* February 2, 1994).

Comment: One commenter (A-90-19: IV-D-32) stated that the Fe value used in the equations in §63.150 to calculate uncontrolled emissions from wastewater collection and treatment devices should be related to the specific type and design of management units used at a plant, not simply the Fe values in table 13 of the proposed rule, which are based on entire treatment systems with uncontrolled components. The commenter (A-90-19: IV-D-32) suggested that the current equations could serve as the default format for sources that do not wish to use more detailed emissions factors.

Response: As discussed previously, the revised Fe values are based on the average of a range of conditions for the type and design of the wastewater collection and treatment system, including controls. The EPA judges these estimates as a reasonable basis for determining both the emission reduction benefits of the HON and the credits and debits for emission averaging. The increased burden on the industry and the permitting authorities that would occur if site-specific emission estimates are judged to be unreasonable compared to the potential for increased accuracy in the emissions estimates is negligible.

Comment: One commenter (A-90-19: IV-D-110) stated that the EPA used a flawed methodology to calculate the removal efficiencies (Fr) of HAP's in wastewater. The commenter (A-90-19: IV-D-110) stated that the EPA's estimates are incorrectly based on a model that assumes a linear relationship between stripping efficiency and the Henry's law coefficients of specific VOHAP's at 25 ^{o}C. The commenter (A-90-19: IV-D-110) contended that the EPA's methodology is incorrect because there is a sigmoidal, rather than a linear relationship between these two variables, and because removal efficiency (Fr) is not simply a function of the Henry's law constant of a compound. The commenter (A-90-19: IV-D-110) stated that the use of a flawed methodology results in an overestimation of target removal efficiencies in table 9 and an inaccurate removal efficiency (Fr) estimate for many compounds in table 33.

Response: After reviewing additional technical information, the EPA has revised the values for Fe and Fr in the final rule. The Fe values in the final rule were estimated for each individual compound using the revised scenarios and are in table 34 of subpart G. Additionally, the Fr values estimated for the proposed rule using the linear relationship between Fe and the Henry's law constant have been replaced in the final rule with the revised values estimated using the Kremser equation in table 9 of subpart G.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-75; IV-D-97) (A-90-23: IV-D-20) argued that the EPA's national emissions estimates and their estimates of removal efficiencies are based on outdated information, and that the EPA should use the data supplied by CMA to re-evaluate the basis of the regulation. One commenter (A-90-19: IV-D-110) urged the EPA to review any inaccurate and outdated information used in selecting the RCT. Several commenters (A-90-19: IV-D-32; IV-D-75; IV-D-97) (A-90-23: IV-D-20) recommended using revised physical property data, refined emissions models, and SOCMI plant scenarios to update emission factors (Fe) and estimates of removal efficiency factors (Fr) and to ensure that the rule meets the proposed cost effectiveness targets. One commenter (A-90-19: IV-D-32) stated that data were provided in the comment letter for use in updating emission factors (Fe) and removal efficiency factors (Fr). Two commenters (A-90-19: IV-D-32; IV-D-73) suggested using individual compound Fr values because many of the group B and group C compound removal efficiencies are overestimated. Two commenters (A-90-19: IV-D-32; IV-D-73) suggested using the Kremser equation to estimate removal efficiency factors (Fr).

Response: The national emissions estimates and removal efficiency estimates made by the EPA for the proposed HON were not based on outdated information, but on information available at the time of the analyses. The CMA did provide information regarding SOCMI plant wastewater system scenarios and emissions models after the HON was proposed. Some of this information has been incorporated into the final national emissions estimates (Memorandum from Clark Allen, Research Triangle Institute, to Elaine Manning, EPA/CPB, *"Estimation of Air Emissions from Model Wastewater Collection and Treatment Plants,"* February 2, 1994) and (Memorandum from Clark Allen, Research Triangle Institute, to Elaine Manning, EPA/CPB, *"Efficiency of Steam Stripper Trays to Treat Wastewater Streams: Prediction of the Fraction Removed (Fr) for Specific Compounds,"* January 7, 1994).

It is assumed that by "revised physical property data," the commenters are referring to revised Henry's law constants. Henry's law constants were updated as part of a joint effort between the EPA and the CMA. These revised Henry's law constants have been used in the final estimates of national impacts (Memorandum from Randy McDonald, EPA/CPB, to HON Wastewater Docket, *"Henry's law Constants for the 83 HAP's Regulated in the Proposed HON Wastewater Provisions,"* May 15, 1993).

The revised Fr values for the final HON regulation are estimated using revised Henry's law constants at 100 ^{o}C. The EPA clarifies that the Kremser equation was the basis for the estimated values in the proposed regulation. In the final HON regulation, table 9 of subpart G lists individual compound Fr values, rather than grouping compounds by a range of Fr values into the target removal efficiency groups used in the proposed regulation. The individual Fr values were estimated using the Kremser equation and are used to demonstrate compliance with mass removal or percent mass reduction treatment options.

<u>Comment</u>: One commenter (A-90-23: IV-G-2) submitted a copy of a memorandum, which summarizes raw process wastewater concentration and loading data gathered in section 114 questionnaires for the OCPSF Industry. The commenter (A-90-23: IV-G-2) stated that the data indicate that the EPA

may have substantially underestimated the extent of wastewater emissions and the extent of the use of steam stripping in the industry.

Response: The information submitted by the commenter was based on responses to a section 114 questionnaire submitted by the EPA to the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) industry in July 1986. This survey did not specifically target the SOCMI nor did it specifically target the SOCMI chemicals listed in §63.105 of the proposed HON. Not all of the processes summarized in the data presented by the commenter (A-90-23: IV-G-2) are SOCMI processes, and not all of these processes emit HAP's. Additionally, the results of the June 1986 survey report total organic concentrations, but not individual compound concentrations, and, therefore, cannot be used to estimate HAP emissions. The total organic concentration includes both HAP and non-HAP compounds.

The data cannot be used to estimate HAP emissions from wastewater because individual compound concentrations are not reported. Additionally, processes other than SOCMI processes are represented. The EPA's estimates of wastewater emissions for the proposed and final HON are based on responses to a section 114 survey conducted in March of 1990. The section 114 survey specifically targets the SOCMI and organic HAP's. Therefore, the EPA concludes that HAP emissions from wastewater, which were estimated using the section 114 data for the SOCMI, are representative of the source.

Further, the data submitted by the commenter do not substantiate the claim that the EPA may have substantially underestimated the extent of the use of steam stripping in the SOCMI. The OCPSF data indicate that out of a total of 356 streams, only 27 are treated by steam stripping (7.6 percent). This indicates that, while steam stripping is employed in the OCPSF industry, it is not used to control a significant portion of the wastewater streams. It is not possible to estimate how many of the 27 steam strippers are actually used to control emissions from HAP-containing wastewater streams. The EPA determined that the MACT floor for wastewater was no control.

Comment: One commenter (A-90-23: IV-D-2) stated that the wastewater provisions are based only on the HAP concentrations in wastewater and the assumption that SOCMI processes are significant sources of HAP emissions. The commenter (A-90-23: IV-D-2) claimed that HAP emissions from wastewater depend on the true partial pressure of the HAP and the degree of exposure to the atmosphere. The commenter (A-90-23: IV-D-2) stated that the true partial pressure for a compound depends on concentration, temperature, and interactions with other chemicals. The commenter (A-90-23: IV-D-2) indicated that all of these factors should be considered when determining control levels for wastewater streams and closed-vent systems.

Another commenter (A-90-23: IV-D-17) claimed that the EPA has ignored the variation in vapor-liquid equilibrium in HON wastewater streams which is caused by interaction between some volatile organics. The commenter (A-90-23: IV-D-17) specifically cited the interaction between benzene and acetone in water.

Response: The wastewater provisions in both the proposed and final HON are based on several technical analyses. These analyses estimate the impacts of implementing the HON. The impact analyses include a quantitative review of emissions reduction, cost effectiveness, energy impacts, secondary environmental impacts, and economic impacts.

In reviewing the emission reduction impact of the HON, the EPA agrees that several factors including partial pressure, degree of exposure to the atmosphere, HAP concentration, and temperature affect HAP emissions from wastewater. However, there are other factors which also affect HAP emissions from wastewater including wind speed, wastewater depth, wastewater flow rate, and physical and chemical properties of the compounds (e.g., diffusivity, molecular weight, Henry's law constant, etc.) in the wastewater.

For purposes of determining Fe values for HAP compounds, the wastewater was assumed to have an average temperature of 30 ^{o}C, and the partial pressure of the organic HAP's in wastewater is assumed to be described by Henry's law at 30 ^{o}C. The EPA also assumes that multi-component interactions are negligible. The commenter, who cited the interaction of benzene and acetone in water as an example of multi-component interaction, did not provide any data. None of the wastewater streams used in the analyses conducted by the EPA contain a mixture of benzene and acetone.

Comment: One commenter (A-90-23: IV-D-17) claimed that the EPA has ignored the effects of fouling and surfactants or detergents on the removal efficiency of the design steam stripper. The commenter (A-90-23: IV-D-17) asserted that surfactants, which may be present in wastewater, alter the surface tension or wetting characteristics of the column and may also cause foaming.

Response: The commenter did not describe any specific causes of fouling in the steam stripper or discuss the effects of fouling and foaming on steam stripper performance. In the absence of such information, the EPA is unable to further address the comment. The EPA recognizes that fouling and the effect of surfactants and detergents on the performance of a steam stripper are site-specific considerations for which information is not available. The EPA notes that a variety of defoaming agents are available for many applications, including wastewater treatment.

Comment: One commenter (A-90-19: IV-D-85) stated that the EPA seems to have underestimated the capabilities of the steam stripper by not accounting for the added emission reductions by the condenser.

Response: The emission reductions from wastewater result from the removal of organic HAP's from the wastewater due to steam stripping. Once the organic compounds are stripped, they cannot be vented to the atmosphere, but must be routed to a control device, as required by §63.138(i). The emission of HAP'S from a control device used to meet the provisions of §63.138(i) will be negligible. Additionally, once the HAP's are removed from the wastewater and the treated wastewater exits the steam stripper, no further reduction of HAP emissions from wastewater is required if the provisions of the regulation have been met. The condenser referred to by the commenter was specified in §63.138(f) of the proposed rule and was intended to control the emission of HAP's removed by the steam stripper. Although the condenser does reduce emissions from residuals (i.e., organics removed from wastewater), the EPA has determined that this reduction is too difficult to predict and does not make a large difference when calculating emission credits and debits for averaging. Therefore, the capabilities of the steam stripper have not been overestimated.

It should be noted that the requirement for a condenser in proposed §63.138(f) has been deleted from the final rule in §63.138(g). The primary condenser may not be used to demonstrate compliance with the 95-percent control requirement for control devices.

3.2.1 Emissions from Biological Treatment Units

Comment: One commenter (A-90-19: IV-D-32) stated that the EPA's emission factors for wastewater collection and treatment systems overestimate the air emissions from biological treatment. The commenter (A-90-19: IV-D-32) contended that the design and operating parameters used by the

EPA to define a typical biological treatment unit did not represent those typically found in the SOCMI.

Response: The commenter used WATER7 to estimate the values for F_{bio} and Fe for those table 9 compounds for which biokinetic data are present in WATER7 and which the commenter believes are biodegradable. Table 3-1 of this section summarizes the required WATER7 input parameters defined by the EPA and those suggested by the commenter as being typical of a SOCMI biological treatment unit.

Using the input parameters suggested by the commenter, the EPA was unable to reproduce the commenter's results. The EPA then requested a computer disk copy of the WATER7 input files used by the commenter. Examination of the WATER7 input files provided by the commenter revealed that the numerical value for inlet solids (2,000) was entered as the input for active biomass concentration. That is, the results presented by the commenter correspond to a biomass concentration of 2,000 g/ℓ. Typical biomass concentrations range from 1 to 6 g/ℓ. This overestimation of active biomass concentration results in the overestimation of the biodegradation rate and underestimation of the air emission rate from biological treatment units.

Using the input parameters summarized in table

TABLE 3-1. SUMMARY OF EPA AND COMMENTER WATER7 INPUT PARAMETERS

	EPA	COMMENTER
Water Flow Rate (m^3/s)	0.0693	0.0693
Total dissolved organics (mg/ℓ)	0	1000
Inlet solids (mg/ℓ)	0	2000
Width of aeration (m)	132.9	39.2
Length of aeration (m)	132.9	39.2
Depth of aeration (m)	1.981	3.5
Active biomass (g/l)	4	4
Aeration air flow (m^3/s)	0	0
Number of units	1	1
Number of agitators	8	2
Area of agitation (each aerator, m^2)	530	530
Aerator alpha (default=0.83)	0.83	0/83
Power of agitation (each aerator, HP)	75	75
Impeller diameter (cm)	61	61
Impeller rotation (HP)	1203	1203
Enter 1 if plug flow	0	0
Wind velocity(cm/s at 10m)	447	447
Wastewater temperature (^oC)	30	30
Enter 1 if covered and vented	0	0

TABLE 3-2. COMPARISON OF FE VALUES PREDICTED BY WATER7 FOR SELECTED TABLE 9 HAP'S

	EPA	COMMENTER
Benzene	0.1979	0.3398
Methanol	0.0103	0.0173
Naphthalene	0.1100	0.1806
Nitrobenzene	0.030	0.076
Toluene	0.1192	0.2025

3-1 of this section, the EPA used WATER7 to estimate the Fe for a biological treatment unit. A summary of the results is shown in table 3-2 of this section. The results indicate that use of the commenter's suggested inputs, after correction of the biomass concentration value, results in even higher estimated emissions from biological treatment units compared to the estimated emissions using the EPA input values. For example, the Fe for benzene is 0.198 using the EPA input parameters, whereas the Fe for benzene is 0.34 using the commenter's suggested inputs. Therefore, the EPA concludes that emissions from biological treatment units were not overestimated in the EPA's impact analysis for the HON. Refer to a memorandum from

Clark Allen, Research Triangle Institute, to Elaine Manning, EPA/CPB, *"Estimation of Air Emissions from Model Wastewater Collection and Treatment Plants,"* February 2, 1994, for further information.

3.2.2 Use of Wastewater Models

Comment: Several commenters (A-90-19: IV-F-1.2 and IV-F-4; IV-D-112; IV-D-77) stated that the EPA's approach for estimating total emissions from wastewater operations is inaccurate because the EPA used data solely generated from models. One commenter (A-90-19: IV-D-75) indicated that the EPA's model plant was oversimplified and unrealistic and that wastewater streams are not centrally collected for treatment at a single steam stripper. One commenter (A-90-19: IV-F-1.2 and IV-F-4) credited the EPA for conducting several field studies, but concluded that these studies were poorly designed and resulted in questionable data.

Response: The data used by the EPA for estimating organic HAP emissions from wastewater are not based solely on models. In March 1990, a section 114 wastewater questionnaire was submitted to nine corporations. While the proposal BID mistakenly cited that 84 model streams were used, actually, a total of 461 wastewater streams from 110 SOCMI production processes were reported in responses. An additional 107 model wastewater streams were developed for 75 SOCMI product processes that were not characterized by wastewater streams in the section 114 responses. These 107 model wastewater streams were developed based on a combination of process knowledge, engineering judgement, and information provided in the section 114 responses.

The EPA agrees that some facilities may choose to treat all or some of their Group 1 streams in multiple locations. However, the EPA's final impact analysis indicates that only approximately 8 percent of the total SOCMI industry wastewater will be affected under this rulemaking. Therefore, the assumption that a single steam stripper is adequate to treat the Group 1 streams in a facility is reasonable for developing cost impacts.

For the proposed rule, the wastewater emission estimates were based on three example wastewater collection and treatment scenarios. Based on public comment, new wastewater collection and treatment scenarios were developed to more accurately represent the SOCMI.

It is not clear what field studies are being referenced by the commenter. The commenter provided no information regarding which aspects they considered to be poorly designed and provided no data to substantiate their claim that the data is questionable. The EPA has thoroughly reviewed the studies in *"Technical Support for the Identification of Collection Systems at Major Emission Sources,"* January 4, 1994. These studies were used to revise the fraction emitted (Fe) values as described in the memorandum from Clark Allen, Research Triangle Institute, to Elaine Manning, EPA/CPB, *"Estimation of Air Emissions from Model Wastewater Collection and Treatment Plants,"* February 2, 1994.

Comment: Two commenters (A-90-19: IV-D-68; IV-D-71) claimed that the wastewater emission models and data used in EPA's HON analysis are outdated and overestimate wastewater emissions. One commenter (A-90-19: IV-D-108) asserted that the EPA overestimated emissions from wastewater collection systems by making unrealistic modeling assumptions. Two commenters (A-90-19: IV-D-68; IV-D-71) claimed that the EPA has ignored data from a study entitled, "*Amoco/USEPA Pollution Prevention Project, Project Summary,* January 1992, Revised June 1992, page 2-6 and Figure 2-8" which indicates that air emissions from wastewater have been overestimated by the models by a factor of 21. One commenter (A-90-19: IV-D-97) contended that the EPA dismissed actual emission measurement data from a large facility containing both SOCMI and non-SOCMI processes.

One commenter (A-90-19: IV-D-108) cited pilot-scale studies done by the EPA at a pharmaceutical company which indicate that methanol removal by steam stripping is typically less than 50 percent.

Response: The EPA assumes that the commenter's use of the term "data" refers to the information obtained from a section 114 survey of the SOCMI. The data were collected in March and April of 1990. It is unlikely that significant changes in SOCMI process design and operation have taken place and/or been implemented since 1990. Therefore, the EPA maintains that the data are current.

The commenters (A-90-19: IV-D-68; IV-D-71) did not explain which of the emission models they consider to be outdated and/or unrealistic; nor were any data or alternative approaches submitted. Therefore, it is not possible for the EPA to act on this comment.

The EPA did not ignore data from the Amoco/USEPA Pollution Prevention Project. The EPA's viewpoint is documented in a report titled *"EPA Follow-Up to the Recommendations of the EPA/Amoco Yorktown Project."* This report includes a discussion of basic methodological limitations which the EPA believes resulted in an underestimation of air emissions from wastewater. These methodological limitations include location of emission measurement points in the wastewater system that, in the EPA's view, were located after substantial emissions could have occurred. Ambient monitoring cross-checks performed to validate emission estimates indicated that benzene emissions may have underestimated by a factor of 2 or more at several sampling points.

The EPA revised the estimates for the removal efficiencies of all compounds regulated under the wastewater provisions of the HON, including methanol. The new estimates reflect revisions to the Henry's law constants and steam stripper removal efficiencies calculated using the Kremser equation. The revised steam stripper removal efficiency for methanol is approximately 30 percent, which agrees with the commenter's statement that methanol removal via steam stripping is typically less than 50 percent.

Comment: One commenter (A-90-19: IV-F-4) objected to the EPA using model streams, model collection and treatment systems, and emission models to estimate national impacts from wastewater collection and treatment systems. The commenter (A-90-19: IV-F-4) acknowledged that the EPA did conduct several field studies, but said that the studies were poorly designed and resulted in questionable data. The commenter (A-90-19: IV-F-4) concluded that the theoretical methods used by the EPA result in an overprediction of emissions, but did not suggest an alternative approach. Two commenters (A-90-19: IV-D-69; IV-D-75) said the assumption that wastewater streams are centrally collected for steam stripping at a single stripper, and stripped materials are burned in an auxiliary incinerator were unrealistic assumptions.

Response: The EPA recognizes that some facilities may choose to treat all or some of their Group 1 wastewater streams in multiple locations. However, the EPA's final impact analysis indicates that only approximately 8 percent of the total SOCMI industry wastewater draw is affected under this rulemaking. Therefore, the assumption made in developing cost that a single steam stripper is adequate to treat the Group 1 streams in a facility is reasonable.

In the proposed HON, a fuel credit for stripped materials sent to a boiler was included in estimating the total national annual costs of steam stripping. Based on comments to the proposed rule, the EPA removed this credit for the stripped materials in estimating total national annual cost of steam stripping in the final rule. The EPA believes that some sources may earn recovery credits due to recycling or firing of recovered organics in boilers to produce steam while other facilities may incur a debit due to disposal costs. However, for estimating national impacts, the EPA has assumed that the credits and debits will cancel with no net impact on costs.

3.3 OTHER ENVIRONMENTAL IMPACTS

Comment: Several commenters (A-90-19: IV-F-1.2 and IV-F-4; IV-D-77) (A-90-23: IV-D-1) expressed concern that there would be negative environmental impacts caused by steam stripping, such as the use of large amounts of energy to generate steam, the generation of residuals, and the emission of additional pollutants to the air and other media.

Response: The EPA's analysis shows that secondary impacts associated with steam stripping of wastewater are not significant compared to the reduction of HAP's. The residuals generated by steam stripping must be handled by either on-site incineration, off-site incineration, or by recycling to the process. The additional fuel required to generate steam can be partially offset by recovering organics and using them as supplementary fuel. Furthermore, combustion of recovered organics generates less SO_2 and PM than combustion of fossil fuels. Recycled organic compounds do not contribute to secondary impacts. Steam stripping has a positive impact on the quality of water being discharged to a wastewater treatment system or a POTW. The issue concerning use of large amounts of energy to generate steam is addressed in more detail in section 3.4 of this BID volume.

Comment: One commenter (A-90-19: IV-D-50) alleged that the EPA underestimated the impacts of NO_x emissions from wastewater control, claiming that the EPA did not consider the NO_x generated from steam stripping.

Response: The EPA did estimate the NO_x emissions that are generated from the combustion of fossil fuels to produce steam for use in steam strippers. The EPA's estimate of the NO_X emissions generated by steam stripping is 600 Mg/yr as presented in table 5-4 of the proposal BID volume 1A.

3.4 ENERGY IMPACTS

Comment: One commenter (A-90-19: IV-D-110) stated that steam stripping requires large amounts of energy to generate steam, and typically uses fossil fuels. The commenter (A-90-19: IV-D-110) indicated that cooling stripper bottoms may require additional energy, which may increase the negative impact on global warming. The commenter (A-90-19: IV-D-110) suggested that the EPA review these factors to accurately determine the costs and benefits of steam stripping.

Response: The EPA has assumed that the latent heat from the steam stripper bottoms is used to preheat the wastewater entering the steam stripper. Therefore, only a small amount of additional energy may be required to cool the steam stripper bottoms. The EPA has also reviewed the energy and secondary impacts generated from the use of steam strippers and has determined that these impacts are insignificant compared to the achieved emission reduction from wastewater. Energy and secondary impacts are presented in proposal BID volume 1C and the proposal preamble.

List of Tables

4.0 APPLICABILITY AND GROUP 1/GROUP 2 DETERMINATION

4.1 APPLICABILITY

Comment: One commenter (A-90-19: IV-D-98) stated that the EPA should describe its legal authority under the Act to establish the applicability of MACT-based standards based on the VOHAP concentration at the point of wastewater generation (i.e., before HAP's can be emitted).

Response: In the final rule, the EPA requires that the owner or operator determine applicability of the regulation at the point of generation or downstream of the point of generation. Once applicability is determined (that is, once the Group 1 wastewater streams are identified), the owner or operator must ensure that Group 1 wastewater streams are controlled for HAP emissions. The EPA clarifies that emission controls are not required until the owner or operator identifies a Group 1 wastewater stream. At which time, such a stream must be controlled from the point of generation in accordance with all applicable regulations.

Comment: One commenter (A-90-19: IV-D-91) stated that petroleum refinery wastewater collection and treatment systems should not be regulated by the HON because these systems will be regulated by a separate MACT rulemaking.

Response: If wastewater is generated by a SOCMI process unit and is managed in a combined collection and treatment system (i.e., the system collects and treats wastewater from both SOCMI and petroleum refinery units), the HON remains applicable to wastewater generated by SOCMI units. The owner or operator of a facility that generates wastewater from SOCMI process units must first determine whether such wastewater is a Group 1 wastewater stream and consequently must be controlled. If the owner or operator elects to manage Group 1 wastewater streams in a combined collection and treatment unit, the HON provides several compliance options. If a SOCMI Group 1 wastewater stream or a residual generated from a Group 1 stream is generated at a petroleum refinery facility, the wastewater and any residuals are still subject to the HON. The HON applies to all SOCMI processes. Therefore, even if the primary function of a facility is non-SOCMI, any SOCMI process unit at the facility is regulated by the HON assuming the facility is a major source.

Comment: One commenter (A-90-23: IV-D-20) supported raising the flow rate component of the applicability criteria in §63.110(e)(1) from 0.02 ℓ/m to 0.2 ℓ/m because the proposed criteria will include streams with very low flow rates. The commenter (A-90-23: IV-D-20) stated that a facility's resources could be used more effectively in controlling streams with higher flow rates.

Response: The definition of "wastewater" in §63.101 of subpart F, which includes both process wastewater and maintenance wastewater, defines the applicability criteria for wastewater below which wastewater streams are not subject to the HON. Wastewater streams with a total VOHAP concentration less than 5 ppmw or a flow rate less than 0.02 ℓ/m are not subject to the HON. The owner or operator of a wastewater stream that meets the definition of "wastewater" in §63.101 of subpart F must determine whether the wastewater stream is a Group 1 or Group 2 wastewater stream. Both Group 1 and Group 2 streams are subject to subparts F and G, but only Group 1 streams require treatment.

Comment: One commenter (A-90-19: IV-D-97) supported the deletion of groups D and E from the strippability groups and recommended that the EPA delete all HAP's from table 9 that have a Henry's law constant value lower than 1.0×10^{-3} atm/(mole/m^3). One commenter (A-90-19: IV-D-32) claimed that many of the excluded compounds would be biodegradable and can be effectively treated in biological treatment units.

Response: Prior to the issuance of the proposed HON, the EPA determined that the chemicals in strippability groups D and E should not be subject to regulation by the HON because such chemicals were not emitted at levels that required control. The EPA agrees that the HON should not regulate chemicals with little or no potential to emit, and therefore deleted strippability groups D and E from the proposed HON.

The EPA also agrees that many of these chemicals may be effectively treated using biological treatment and encourages facilities to do so.

Comment: One commenter (A-90-19: IV-D-92) urged the EPA to exempt water-soluble HAP's from the steam stripping control requirements in the HON because such HAP's cannot be effectively removed by steam stripping.

Response: The EPA has removed seven compounds from the list of regulated HAP's in table 9 of subpart G based on their low Fe values. Furthermore, any HAP's that the EPA has determined to be water-soluble or water-reactive are not regulated by the HON wastewater provisions. For the 76 remaining regulated HAP's, the EPA continues to allow steam stripping as one of the options for treatment, but also allows other compliance options in §§63.138(b)(1), (c)(1), (d), and (e) including recycling and biological treatment.

Comment: One commenter (A-90-23: IV-D-20) suggested that the EPA clarify language in §63.138(c)(1)(ii) regarding whether facilities may treat several individual streams in the same waste management unit.

Response: Although §63.138(c)(1)(ii) discusses the treatment of individual wastewater streams, the EPA allows other options for treatment of wastewater streams. According to §63.138(c)(1)(iii), facilities may aggregate several wastewater streams to facilitate treatment.

Comment: One commenter (A-90-19: IV-D-33) stated that the requirements concerning maintenance wastewater and heat exchangers in §63.102(b) and the associated definition in §63.101 should be modified and removed from subpart F and placed in subpart G. The commenter (A-90-19: IV-D-33) stated that subpart F should be reserved for general applicability issues. The commenter (A-90-19: IV-D-33) recommended that the provisions in §63.102(b) should be moved to a new subparagraph §63.110(f) and the associated definitions should be moved from §63.101 to §63.111. By creating a new subparagraph, the commenter (A-90-19: IV-D-33) stated that the regulation would clearly not require such wastewater streams to be subject to Group 1/Group 2 determination procedures.

Response: The heat exchange system and maintenance wastewater provisions were placed in subpart F to distinguish cooling waters and maintenance wastewaters from process wastewaters, because they are subject to different requirements than process wastewaters. For example, cooling waters do not require a Group 1/Group 2 determination. Furthermore, subpart G requirements address routine emissions from SOCMI operations, while subpart F addresses applicability and general requirements, such as leak detection and repair and the start-up, shutdown, and malfunction plan.

The heat exchange system provisions have been moved from the general standards provisions in §63.102 of subpart F to a separate heat exchange system section in §63.104 of subpart F. The maintenance wastewater provisions have been moved from the General Standards provisions in §63.102 of subpart F to a separate maintenance wastewater section in §63.105 of subpart F. Therefore, §63.102 of subpart F only contains the general applicability provisions. The definitions of heat exchange system and maintenance wastewater remain in §63.101 of subpart F. Changes to the maintenance wastewater provisions are provided in a previous discussion in this section.

4.1.1 Definition of "Residuals"

Comment: Several commenters (A-90-19: IV-F-1.2 and IV-F-4; IV-D-112; IV-D-32) (A-90-23: IV-D-21) requested clarification from the EPA on the definition of "residuals." Several commenters (A-90-19: IV-D-32; IV-D-53; IV-D-60; IV-D-110; IV-D-112) (A-90-23: IV-D-2; IV-D-20) stated that the definition of "residuals" in the proposed rule was too broad and could be interpreted to include settled inorganic solids, polymers, and similar inert materials which may contain only trace amount of HAP's.

Response: Based on comments received about the definition of residuals, the EPA has changed the definition in §63.111 of subpart G to read:

> Residual means any HAP-containing water or organic that is removed from a wastewater stream by a waste management unit or treatment process that does not destroy organics (nondestructive unit). Examples of residuals from nondestructive wastewater management units are: the organic layer and bottom residue removed by a decanter or organic-water separator; and the overheads condensate stream from a steam stripper or air stripper. Examples of materials which are not residuals are: silt; mud; leaves; bottoms from a steam stripper or air stripper; and sludges, ash, or other materials removed from wastewater being treated by destructive devices such as biological treatment units and incinerators.

In response to several commenters who expressed concern about the inclusion of polymers in the definition of residual, the EPA has concluded, based on input from industry, that polymers may be recycled to a production process. The EPA encourages this management option for polymers; however, if polymers generated from the treatment of a Group 1 wastewater stream are not recycled to a production process, they must be managed as residuals.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-53; IV-D-60; IV-D-79; IV-D-110; IV-D-112); (A-90-23: IV-D-20) suggested that the definition of "residuals" be limited to materials derived from treatment of Group 1 wastes and should include a *de minimis* VOHAP concentration based on Group 1 wastewater criteria. For example, the commenters (A-90-19: IV-D-32; IV-D-53; IV-D-60; IV-D-79; IV-D-110; IV-D-112); (A-90-23: IV-D-20) recommended that a residual would have greater than 1,000 ppmw based only on those HAP's in table 9 of the rule, and for new units, greater than 10 ppmw for table 8 HAP's. One commenter (A-90-19: IV-D-60) suggested that the EPA should clarify that residuals removed from a Group 1 wastewater stream should be subject to the residual treatment requirements only when the residual is generated during treatment which is required in order to achieve compliance. For example, the commenter (A-90-19: IV-D-60) stated that residuals, which are generated from the treatment of a Group 1 wastewater stream and also comply with the 1 Mg/yr cutoff in §63.138(c)(5), should not be required to be controlled under HON.

Response: The EPA agrees with the commenters that residuals that are subject to regulation by the HON are limited to those residuals that are removed from a Group 1 wastewater stream, which is also subject to control requirements in the HON. Residuals removed from the following wastewater streams are not required to be controlled by the HON: (1) Group 2 wastewater streams, if the Group 2 wastewater stream is managed separately from Group 1 wastewater streams; and (2) Group 1 wastewater streams that are not required to be controlled because the facility meets the criteria for the 1 Mg/yr source-wide exemption in §63.138(c)(5) or (6).

The EPA specifies in §63.138(h) that only residuals removed from Group 1 wastewater streams must be controlled. The EPA considered the incorporation of a *de minimis* VOHAP concentration based on Group 1 wastewater criteria for residuals; however, the EPA has concluded that all residuals must be managed by: (1) being recycled to the process unit or sold for the purpose of recycling; (2) being returned to the treatment process; or (3) being treated to destroy the total HAP mass flow rate by 99 percent or greater. For each of these management options, the EPA clarifies that residuals must be managed in accordance with the requirements in §§63.133 through 63.137 until they are actually returned to the process unit or treatment process; are destroyed; or are converted to a raw material. The owner or operator must ensure proper management of residuals even if they are handled offsite. The EPA clarifies that the purpose of the residuals provisions is to ensure that HAP emissions are actually controlled and not just shifted to another part of the facility.

Comment: One commenter (A-90-19: IV-D-73) recommended adding a minimum cut-off criteria of greater than 10 tons per year and/or 1,000 ppm of table 9 substances for defining wastewater or residual organic HAP levels at which control of wastewater tanks, surface impoundments, containers, individual drain systems, and oil water separators is required.

One commenter (A-90-19: IV-D-86) suggested that control of residuals be required only for concentrations of at least 10,000 ppm. The commenter (A-90-19: IV-D-86) alleged that only HAP's listed on table 9 and not total HAP's in residuals should require 99 percent reduction.

Two commenters (A-90-19: IV-D-86), (A-90-23: IV-D-17) favored having a *de minimis* level for total annual HAP quantity in wastewater similar to the 10 Mg/yr total annual benzene *de minimis* in the Benzene Waste NESHAP.

Response: The HON specifies the applicability criteria for wastewater streams in the definition of "wastewater" in §63.101 of subpart F. If a wastewater stream does not meet these applicability criteria, the wastewater stream is not subject to the HON. The commenter (A-90-19: IV-D-73) provided no reason why the EPA should raise the Group 1/Group 2 criteria for wastewater to 10 tons per year and/or 1,000 ppm for table 9 HAP's. The Group 1/Group 2 determination criteria for existing facilities specifies that any process wastewater stream with either (1) a total VOHAP average concentration of table 9 compounds equal to or greater than 1,000 ppm and a flow rate equal to or greater than 10 ℓ/m, or (2) with a total VOHAP average concentration equal to or greater than 10,000 ppmw and any flow rate is a Group 1 stream and must be treated in accordance with the requirements of §63.138.

The EPA does not specify minimum concentration cutoffs for residuals because only those residuals that are generated from the treatment of Group 1 wastewater streams must be controlled. If such residuals were not controlled, there would be no point in requiring separation of the organic residuals from wastewater.

The HON is a technology-based rule and the Benzene Waste NESHAP is a risk-based rule. The 10 Mg/yr total annual benzene threshold in the Benzene Waste NESHAP [40 CFR subpart FF] is a facility-wide applicability threshold based on risk and is therefore not relevant to the HON. Furthermore, the 10 Mg/yr threshold applies to the total annual benzene quantity from all facility waste with greater than 10 percent water, and not just process wastewater. The wastewater provisions of the HON apply to wastewater and residuals generated by treatment of Group 1 wastewater streams but not to all emission points at the source. Therefore, the

10 Mg/yr threshold that is specified in the Benzene Waste NESHAP has not been incorporated.

Comment: Two commenters (A-90-19: IV-D-89; IV-D-92) claimed that the Benzene Waste NESHAP excludes streams with concentrations of less than 10 ppm while the HON includes streams with concentrations of greater than 5 ppm. One commenter (A-90-19: IV-D-89) claimed that these inconsistencies may require piping modifications. One commenter (A-90-19: IV-D-89) alleged that §63.110(e) of the proposed regulation includes streams with concentrations greater than 5 ppm. The commenter (A-90-19: IV-D-92) indicated that §63.132 excludes streams having a concentration less than 10 ppm (table 8). The commenter (A-90-19: IV-D-92) urged the EPA to be consistent with the Benzene Waste NESHAP by excluding all streams with concentrations less than 10 ppm. The commenter (A-90-19: IV-D-92) claimed that this would prevent facilities that are in compliance with the Benzene Waste NESHAP from having to rework any equipment.

Response: The HON defines "wastewater" in §63.101 of subpart F as "organic hazardous air pollutant-containing water or process fluid that is discharged from a chemical processing unit that meets all applicability criteria specified in §63.100(b)(1) through (b)(3) of this subpart and that is discharged into an individual drain system and either (1) contains at least 5 ppmw total volatile organic HAP's and has a flow rate equal to or greater than 0.02 ℓ/m, or (2) contains a concentration of at least 10,000 ppmw total volatile organic HAP's and any flow rate." This definition provides the applicability criteria for whether a wastewater stream will be designated as a wastewater by the HON. The definition of "wastewater" does not specify which wastewaters will be controlled by the HON. Rather, it specifies which wastewaters that the owner or operator must check for Group 1 or Group 2 status. If a waste stream has less than 5 ppmw total volatile organic HAP's, it is not considered a wastewater stream under the HON, which means it will not be subject to Group 1/Group 2 determination (i.e., stream cannot be a Group 1 or a Group 2 stream).

Under the HON, the Group 1/Group 2 determination for a wastewater stream designates whether the stream must be controlled. The Benzene Waste NESHAP does not have a Group 1/Group 2 determination. The Benzene Waste NESHAP requires the owner or operator to determine whether the facility-wide total annual benzene quantity from facility waste is greater than or equal to 10 Mg/yr. The 10 Mg/yr threshold was selected because the Benzene Waste NESHAP is risk-based and 10 Mg/yr exceeded the 1×10^{-4} MIR. If the total annual quantity of benzene is greater than or equal to 10 Mg/yr, the owner or operator must control all streams with a flow-weighted annual average benzene concentration of 10 ppmw or greater unless the waste stream is a process wastewater that has a flow rate less than 0.02 ℓ/m. To compare the wastewater control requirements for the HON and the Benzene Waste NESHAP, the EPA reviewed the control requirements for the Benzene Waste NESHAP with the requirements for both new and existing SOCMI sources subject to the HON.

For both new and existing sources, the HON requires the SOCMI owner or operator to determine whether each process wastewater stream is a Group 1 or Group 2 wastewater stream with respect to the compounds listed on table 9 of subpart G. A wastewater stream is a Group 1 wastewater stream and must be controlled in accordance with the HON if the total VOHAP average concentration for a process wastewater stream at a <u>new</u> or <u>existing</u> facility is (1) greater than or equal to 10,000 ppmw of the compounds on table 9; or (2) has an average flow rate greater than or equal to 10 ℓ/m and a total VOHAP average concentration greater than or equal to 1,000 ppmw.

When the EPA compared these criteria for controlling air emissions at new and existing facilities subject to the HON with the control criteria for the Benzene Waste NESHAP, the EPA concludes that the Benzene Waste NESHAP is more stringent.

In the case of new SOCMI sources that are subject to the HON, the EPA has developed control criteria based on compounds listed on table 8 of subpart G. The compounds on table 8, which the EPA has determined are very volatile compounds, are a subset of those on table 9. For these more volatile compounds, the EPA has developed more stringent control criteria than those required for the table 9 compounds at new and existing SOCMI sources. For new sources, the HON requires the SOCMI owner or operator to determine whether each process wastewater stream is a Group 1 or Group 2 wastewater stream with respect to the compounds listed on table 8. A wastewater stream is a Group 1 wastewater stream and must be controlled in accordance with the HON if the average flow rate is greater than or equal to 0.02 ℓ/m and the wastewater stream has an average VOHAP concentration of 10 ppmw or greater of any one of the compounds listed in table 8. For new sources, the control criteria for Group 1/Group 2 determinations for compounds that are listed on table 8 are the same as the control criteria for the Benzene Waste NESHAP.

While for new sources, the HON is consistent with the Benzene Waste NESHAP's control criteria (i.e., 0.02 ℓ/m and 10 ppmw), the Benzene Waste NESHAP remains more stringent than the HON for control of compounds listed on table 9 for both new and existing sources. The EPA disagrees with the commenters' statement that the 5 ppmw VOHAP concentration in the definition of "wastewater" in the HON is inconsistent with the 10 ppmw concentration in the Benzene Waste NESHAP. As previously discussed, the 5 ppmw concentration that is specified in both the definition of "wastewater" in §63.101 and the applicability criteria for wastewater in §63.110(e) does not require the control of wastewater streams with organic HAP concentrations greater than 5 ppmw and less than 10 ppmw. In fact, wastewater streams in this concentration range would meet the definition of a Group 2 stream for both new and existing facilities for compounds listed on both tables 8 and 9. The EPA continues to include the 5 ppmw applicability threshold to indicate that waste streams containing below 5 ppmw total volatile organic HAP's are not defined as wastewater streams by the HON. The commenter (A-90-19: IV-D-92) did not provide any details about why the equipment may require "rework."

Comment: Several commenters (A-90-19: IV-D-32; IV-D-60; IV-D-79; IV-D-112) stated that the VOHAP concentration in some residual materials such as inorganic grits and settleable solids will typically be low, and in such cases a 99-percent HAP removal for residuals will be unachievable. The commenters (A-90-19: IV-D-32; IV-D-60; IV-D-79; IV-D-112) suggested that the EPA establish a *de minimis* level for HAP's in residuals.

Response: Although the EPA has not incorporated an additional *de minimis* level for VOHAP concentrations in residuals, materials such as leaves, silt, mud, and sludge removed from a treatment device such as a biological treatment unit have been specifically excluded from the definition of "residual." Such materials will not contain significant HAP's. The EPA continues to limit residuals to those streams that are generated from Group 1 wastewater streams. Also, because the HON provides other residual management options, which include recycling the residual to a production process and returning the residual to the treatment process, the option to treat all residuals generated by a Group 1 wastewater stream by 99 percent or greater will remain in the final rule.

Comment: One commenter (A-90-19: IV-D-34) stated that the EPA has not considered the safety aspects associated with treatment of residuals.

Response: The EPA has considered the safety issue associated with treatment of residuals and has not identified any safety hazards. The commenter also did not explain any specific concerns.

Comment: One commenter (A-90-19: IV-D-34) stated that the EPA should develop rules for residual treatment under the upcoming rule for TSDF facilities or defer the rulemaking until a cost analysis is completed.

Response: The EPA clarifies that control of emissions from residuals is an integral part of the HON and cannot be separated into another rulemaking. Also, because all residuals generated by SOCMI facilities are not sent to a TSDF, the upcoming TSDF rulemaking would not necessarily apply to residuals generated by SOCMI sources.

4.1.2 Definition of "Wastewater"

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-53; IV-D-54; IV-D-60; IV-D-102; IV-D-113; IV-D-110; IV-F-1.2 and IV-F-4) (A-90-23: IV-D-9; IV-D-17; IV-D-20) expressed concern that the current definition of wastewater in §63.101 of subpart F seems to include, and thus regulate, process fluids, products, and intermediate streams, which the EPA did not intend to regulate. Three commenters (A-90-19: IV-D-53; IV-D-86) (A-90-23: IV-D-9) recommended that the definition of "wastewater" should not include raw materials, intermediate products, finished products, or byproducts. One commenter (A-90-23: IV-D-9) claimed that the transfer of process fluids is central to production for batch processes and that such process fluids are not wastewaters.

Response: The EPA agrees with the commenters that process fluids, products, and intermediate streams that are in use in a production or manufacturing process are not subject to the HON. However, the EPA intends to regulate any such stream if it is discharged to an individual drain system and either (1) has a total VOHAP concentration that is equal to or greater than 5 ppmw and has a flow rate equal to or greater than 0.02 ℓpm; or (2) has a total VOHAP concentration of 10,000 ppmw or greater at any flow rate. The EPA has revised the definition of wastewater in §63.101 of subpart F as follows:

> Wastewater means organic hazardous air pollutant-containing water, raw material, intermediate, product, by-product, co-product, or waste material that exits a chemical manufacturing process unit equipment that meets all of the criteria specified in §63.100(b)(1) through (b)(3) of this subpart and either (1) contains a total volatile organic hazardous air pollutant concentration of at least 5 ppmw and has a flow rate of 0.02 ℓpm or greater; or (2) contains a total volatile organic hazardous air pollutant concentration of at least 10,000 ppmw at any flow rate. Wastewater includes both process wastewater and maintenance wastewater.

The EPA has removed the term "process fluid" from the definition of wastewater in response to commenter confusion over its use in the proposed rule.

Comment: One commenter (A-90-19: IV-D-98) stated that the EPA should provide a technical and legal rationale for the broad scope of the definition of "wastewater." The commenter (A-90-19: IV-D-98) indicated that the Act authorized the EPA to regulate the emissions of HAP's by setting emission limitations, but questioned the EPA's authority to broadly define wastewater as "HAP-containing water or process fluid."

Response: The EPA has modified the definition of "wastewater" in the final rule. The EPA intends to regulate any HAP-containing water, raw material, intermediate product, by-product, co-product or waste material that is managed in an open wastewater collection and treatment system and has the potential to emit a significant level of HAP's. The definition of "wastewater" emphasizes that such streams are not regulated unless they enter an individual drain system.

The EPA has developed the wastewater requirements in the HON in accordance with the Act. Because wastewater is a component of the SOCMI source category, the Act provides the EPA with the authority to control emissions from wastewater. The EPA has reviewed the emission data submitted by the SOCMI on the 114 questionnaires and has determined that the wastewater provisions in the HON are sufficient to control air emissions.

Comment: One commenter (A-90-19: IV-D-86) stated that the definition of process wastewater, which is found within the definition of wastewater in §63.101 should not include non-contact cooling water, utility wastewaters, general site surface runoff, groundwater, and other non-process wastewaters generated on-site.

Response: In order to further clarify the definition of "wastewater" in §63.101 of subpart F, the EPA has separated the definitions of "process wastewater" and "maintenance wastewater" from the definition of "wastewater," and deleted the definition of "maintenance-turnaround wastewater." Each definition remains in §63.101 of subpart F, but is listed as a separate entry in the definition list. The EPA agrees that any waste stream that does not meet the definition of "wastewater" in §63.101 of subpart F is not subject to the rule. The EPA has not specifically excluded non-contact cooling water, utility wastewater, and other non-process wastewater generated onsite because such waste streams will likely not meet the definition of wastewater in §63.101 of subpart F. However, if these waste streams exceed the criteria for flow rate and VOHAP concentration, and are discharged into an individual drain system, such streams would be considered wastewater.

Comment: Several commenters (A-90-19: IV-D-53; IV-D-86; IV-D-102; IV-D-110) (A-90-23: IV-D-20) recommended that the EPA specify a percentage of water that must be present in a waste stream in order for it to be considered a wastewater in §63.101. One commenter (A-90-23: IV-D-20) suggested that a waste stream must have at least 10 percent water to be considered wastewater under the HON. One commenter (A-90-19: IV-D-73) favored changing the definition of a wastewater stream by incorporating a minimum 90 weight percent water content. One commenter (A-90-19: IV-D-53) suggested that the definition of maintenance wastewater in subpart F should include "aqueous process fluids" or "draining water used to wash process fluids." Two commenters (A-90-19: IV-D-33; IV-D-110) suggested that the EPA clarify the definition of "wastewater" so that the regulated liquid must be water or have an aqueous fraction, have contact with process fluids or organic HAP's, and be destined for disposal.

Response: The EPA does not specify a percentage of water that must be present in wastewater in order for it to be considered a wastewater as defined in §63.101 of subpart F. The EPA clarifies that the water content in a wastewater stream is not a critical issue; but rather, when any wastewater is discharged to an individual drain system, it is essential that HAP emissions be controlled. The EPA maintains that regulating wastewater streams based on VOHAP concentration and flow rate is sufficient to determine whether a wastewater stream has the potential to emit HAP's. The EPA intends to regulate both water and process fluid waste streams that are discharged from SOCMI chemical manufacturing process units and into an individual drain system and either (1) have a VOHAP concentration equal to or greater than 5 ppmw and a flow rate equal to or greater than 0.02 ℓ/m; or (2) have a VOHAP concentration of at least 10,000 ppmw at any flow rate.

Comment: One commenter (A-90-19: IV-D-86) urged EPA to be consistent with the Benzene Waste NESHAP and OCPSF guidelines in the HON definition of wastewater.

Response: The EPA recognizes the importance of consistency with other regulations and has written the language in the definitions of the final rule to be consistent, where possible, with other regulations. The commenter did not provide specific information about which portions of the proposed HON definitions were inconsistent or how any inconsistency would have a negative impact.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-77; IV-D-102) provided background data on the ethylene oxide production process to illustrate the importance to the industry that the EPA clarify the definitions of "wastewater," "wastewater stream," "individual drain system," and "point of generation." The commenters (A-90-19: IV-D-32; IV-D-33; IV-D-77; IV-D-102) expressed concern that the definition of "wastewater" could be interpreted to include process water used as a reactant or a carrier which has not yet left the process units. For example, one commenter (A-90-19: IV-D-77) stated that one of the processes necessary for ethylene oxide production generates water, which is recirculated in the production process. The commenter (A-90-19: IV-D-77) expressed concern that the Agency may not classify this part of the ethylene oxide production as "integral to the process," which would result in all water from the process being classified as a wastewater rather than a recirculated process fluid.

Response: The EPA clarifies that a waste stream is not subject to the HON unless it is generated from a chemical processing unit that meets all applicability criteria specified in §63.100(b)(1) through (b)(3) of subpart F and until the waste stream exits the process unit and enters an individual drain system. In addition, such a waste stream is not regulated by the HON unless the waste stream meets the applicability criteria in the definition of wastewater in §63.101, which specifies that an organic-HAP containing water or process fluid shall contain either (1) a total VOHAP concentration of 5 ppmw or greater and have a flow rate equal to or greater than 0.02 ℓ/m; or (2) contain a total VOHAP concentration of at least 10,000 ppmw at any flow rate.

The EPA maintains that process water used as a reactant or a carrier which has not yet left the process unit cannot be a regulated wastewater under the HON because it has not entered an individual drain system. The EPA has further addressed the commenters' concerns in the responses to each of the comments on the definitions of "wastewater," "wastewater stream," and "individual drain system."

Comment: One commenter (A-90-19: IV-D-53) claimed that the concentration cutoff specified in the definition of wastewater should refer to total VOHAP concentration and not total organic HAP's.

Response: The EPA agrees with the commenter, and the definition of wastewater has been changed in the final rule to refer to total VOHAP concentration.

Comment: One commenter (A-90-19: IV-D-33) stated that definitions of "wastewater" in §63.101 and "wastewater stream" in §63.111 contain several confusing differences and should be clarified. Several commenters (A-90-19: IV-D-33; IV-D-53; IV-D-77) (A-90-19: IV-G-5; IV-G-10) provided suggestions to the EPA about how to clarify the confusion between the two definitions including: (1) combining the definitions into one definition in §63.101; (2) consistently using the same terms and examples; (3) adding the phrase "Group 1 or Group 2" before the term "wastewater" in the definition of "wastewater stream" in subpart G to clarify which wastewaters are subject to the control requirements under the HON; and

(4) consistently using the terms "concentration of total organic HAP's" and "VOHAP concentration."

Two commenters (A-90-19: IV-G-10) (A-90-23: IV-G-5) claimed that the definitions of wastewater in §63.111, §63.132(f)(1), and §63.132(f)(2) of subpart G are inconsistent. The commenters (A-90-19: IV-G-10) (A-90-23: IV-G-5) claimed that the flow and concentration cutoffs that define Group 1 and Group 2 wastewater streams are inconsistent in these three sections.

Response: In the final rule, the EPA has clarified the definitions of "wastewater" in §63.101 of subpart F and "wastewater stream" in §63.111 of subpart G by including all relevant information about wastewater identification in the definition of "wastewater" in subpart F, §63.101. The EPA continues to include the definition of "wastewater stream" in subpart G, §63.111 because the term is used throughout subpart G. However, the EPA has simplified the definition of "wastewater stream" in subpart G, §63.111 by referencing the definition of "wastewater" in subpart F, §63.101.

The EPA further clarifies the definition of "wastewater" in subpart F, §63.101 by creating separate definitions for "process wastewater" and "maintenance wastewater." These definitions remain in subpart F, §63.101, but are no longer located within the definition of "wastewater."

The definitions for "Group 1 wastewater stream" and "Group 2 wastewater stream" remain unchanged in subpart G, §63.111. As a further clarification, the EPA has added a definition for "process wastewater stream" in subpart G, §63.111, which references the definition of "process wastewater" in subpart F, §63.101.

The EPA also clarifies that the parameters for determining whether a waste stream is a wastewater and therefore subject to the HON are intended to be different than the Group 1/Group 2 criteria, which must be checked for each wastewater stream to determine applicable control requirements. However, the concentration criteria used in the definition of wastewater in subpart F is listed in terms of VOHAP concentration and not total organic HAP concentration in the final rule.

4.1.3 Definition of "Wastewater Stream"

Comment: Several commenters (A-90-19: IV-D-1; IV-D-53; IV-D-73; IV-D-97; IV-D-102) (A-90-23: IV-D-20) requested the following changes in the definition of "wastewater stream" in §63.111 of subpart G: (1) the term "indirect contact" should be deleted because it seemed to include stormwater and non-contact cooling water; (2) the term "reflux" should be deleted because it is confusing and usually refers to materials that will never be discharged to an individual drain system. One commenter (A-90-19: IV-D-53) claimed that the current definition of "wastewater stream" in subpart G, §63.111 can include any process stream that has been in contact with wastewater. The commenter (A-90-19: IV-D-53) recommended adding the phrase "destined for disposal" to the definition of wastewater stream. Two commenters (A-90-19: IV-D-53) (A-90-23: IV-D-20) stated that the definition of "wastewater stream" should be limited to HAP-containing aqueous (at least 10 percent water) liquid or aqueous material separated from the liquid. Several commenters (A-90-19: IV-D-53; IV-D-73; IV-D-97) (A-90-23: IV-D-20) suggested that the definition exclude cooling water blowdown, residuals, safety showers, eye washes, water from fighting fires, spills, maintenance wastewater, maintenance-turnaround wastewater, steam trap condensate, once-through cooling water, and landfill leachate. One commenter (A-90-19: IV-D-53) claimed that boiler water is carefully treated to remove impurities which would cause scaling, and therefore, the EPA did not need to include steam trap condensate as an example of a wastewater stream. One commenter (A-90-19: IV-D-73) indicated that it was unclear whether further control was necessary once the wastewater stream has been treated according to §63.138(b) or (c).

Response: The EPA agrees that several of the examples that were included in the proposed definition of "wastewater stream" in subpart G, §63.111 were confusing and could have been misinterpreted to regulate materials that would not normally contain HAP's or would not be discharged to an individual drain system. In response to comments on such waste streams, the EPA has removed "cooling tower blowdown," "steam trap condensate," and "reflux" from the definition of "wastewater stream." Cooling tower blowdown was deleted from the list of wastewater examples because it is regulated by §63.104 in subpart F. Steam trap condensate was deleted as an example of a wastewater stream because the boiler water is already treated to remove any chemical impurities including HAP's that could cause scaling. Numerous industry comments were received that stated "reflux" was a commonly used term, which refers to a stream that is still within a process unit and has not been discharged. Such streams do not have a potential for HAP emissions.

The EPA has clarified the definition of "wastewater stream" in subpart G, §63.111 by stating that wastewater stream means a stream that contains only wastewater as defined in subpart F, §63.101.

4.1.4 Definition of "Individual Drain System"

Comment: Several commenters (A-90-19: IV-D-32; IV-D-32; IV-D-33; IV-D-53; IV-F-1.2 and IV-F-4) (A-90-23: IV-D-20) requested clarification on the definition of individual drain system. Two commenters (A-90-19: IV-D-32; IV-D-53) stated that the proposed definition of "individual drain system" should be clarified to allow the combination of stormwater, Group 2 wastewaters, and non-SOCMI wastewaters in collection systems. Three commenters (A-90-19: IV-D-33; IV-D-53)

(A-90-23: IV-D-20) disagreed with the requirements to segregate the vapors within the individual drain system because it would be impractical. One commenter (A-90-19: IV-D-53) recommended that the requirements to segregate the vapors within the individual drain system be deleted from the definition because it may be difficult, because at many SOCMI facilities, storm water from process areas will enter the individual drain system. Three commenters (A-90-19: IV-D-33; IV-D-53) (A-90-23: IV-D-20) suggested adding a sentence to the definition of individual drain system that exempts drains and sewers that feed an individual drain system if the system is designed to isolate the vapor connection between the two. One commenter (A-90-19: IV-D-32) expressed concern that the proposed definition of individual drain system would require the segregation of vapor spaces of sewers carrying non-SOCMI wastewaters and stormwaters from vapor spaces of sewers in SOCMI service. Two commenters (A-90-19: IV-D-32) (A-90-23: IV-D-20) recommended a definition of "individual drain system" that they determined was consistent with the definition in the NSPS for petroleum refinery wastewater systems at 40 CFR part 60 subpart QQQ §60.691.

Response: In response to commenter concerns that the definition of "individual drain system" is too broad and inclusive, the EPA restates that segregated stormwater sewers are not subject to the HON. However, if stormwater is mixed with HAP-containing wastewater streams in the individual drain system, then all of the streams must be treated because the stormwater will be in direct contact with the HAP-containing wastewater that is subject to the HON.

The EPA continues to require vapors which are generated in an individual drain system that is subject to the HON to be segregated from other drain systems. The EPA requires this provision in order to eliminate fugitive emissions that would escape through connecting drain systems. The EPA recognizes that the definitions of "individual drain system" in the HON and in the Petroleum Refinery NSPS (40 CFR subpart QQQ) have different wording. The definition of "individual drain system" in the Petroleum Refinery NSPS includes drains, junction boxes, and associated sewer lines, and extends down to the point where the wastewater enters the oil-water separator. The HON, however, requires control from the point of generation through treatment that meets specified levels. Both regulations are the same conceptually. That is, both regulations require emission suppression from the point of first control (i.e., drain hub for the Petroleum Refinery NSPS and the exit of the process unit equipment for the HON) to the treatment unit (i.e., oil-water separator for the Petroleum Refinery NSPS and options in §63.138 for the HON). Therefore, the EPA maintains that the definition of "individual drain system" in the HON should be and is different from the definition in the Petroleum Refinery NSPS.

Comment: One commenter (A-90-19: IV-D-33) stated that the definition of "individual drain system" should be modified to mean a system used to convey wastewater streams from a process unit, product or feed storage tank, or emission control unit to a waste management unit. The commenter (A-90-19: IV-D-33) stated that an individual drain system should not be a system that conveyed wastewater from one waste management unit to another waste management unit. Another commenter (A-90-19: IV-D-32) stated that §63.138(b) and (c), which provide the treatment options for Group 1 wastewater streams, should clearly state that after Group 1 wastewater streams are treated to target levels they are no longer regulated.

Response: The EPA continues to regulate individual drain systems that convey wastewater from one waste management unit to another waste management unit, because HAP's can be emitted between the units if the wastewater stream is uncontrolled.

For example, a wastewater stream that first passes through an oil-water separator and is then conveyed to a steam stripper must be conveyed in a controlled drain system when it leaves the oil-water separator until it enters the steam stripper in order to prevent HAP emissions between the waste management units. The EPA also notes that if a wastewater stream first enters a steam stripper, which treats the wastewater to comply with the HON, the wastewater may be conveyed in an uncontrolled drain system to any other treatment system such as a biological treatment unit.

The requirements for Group 1 wastewater streams in §63.138(b)(1) and (c)(1) state that a Group 1 wastewater stream must be either recycled to the process or treated to a target level. Section 63.138 also lists the requirements for any residuals that are removed from the Group 1 wastewater stream during the treatment process. After a Group 1 wastewater stream is treated in accordance with §63.138 it is no longer subject to the HON. However, treated Group 1 wastewaters may be subject to other regulations (e.g., they may require NPDES discharge permits).

4.1.5 Clarification of "Point of Generation"

Comment: Several commenters (A-90-19: IV-D-32; IV-D-53; IV-D-110) stated that the definition of "point of generation," should specifically include provisions to allow worker health and safety, and other applicable State and Federal regulations, to be considered (e.g., where OSHA regulations may preclude flow monitoring and sampling of wastewater because of the presence of adjacent equipment or wastewater characteristics that could endanger worker health and safety).

Three commenters (A-90-19: IV-F-1.2 and IV-F-4; IV-D-32; IV-D-34) stated that the proposed definition for "point of generation" was confusing because of the inclusion of the phrase "integral to the process unit". Three commenters (A-90-19: IV-D-34; IV-D-77; IV-D-102) requested clarification of "integral to the process unit." Some equipment may be essential to a unit's normal mode of operation, but may be removed for short periods during maintenance without shutting down the entire process. One commenter (A-90-19: IV-D-102) stated that such equipment should be considered an integral part of the process. One commenter (A-90-19: IV-D-53) claimed that some control devices are integral to the process unit, because they cannot be shut down without violating a permit.

Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-46; IV-D-53; IV-D-62; IV-D-73; IV-D-77; IV-D-79; IV-D-92; IV-D-110; IV-D-112; IV-F-1.2 and IV-F-4) (A-90-23: IV-D-17) suggested that the point of generation should be designated as the first point downstream of a process unit where emissions can enter the atmosphere. One commenter (A-90-19: IV-D-53) claimed that there is no potential for emissions before the wastewater enters the process sewer because many facilities have emissions-suppressed piping systems. The commenter (A-90-19: IV-D-53) claimed that this definition of "point of generation" would allow direct sampling and flow monitoring.

Several commenters (A-90-19: IV-D-32; IV-D-62; IV-D-77; IV-D-102; IV-D-110) stated that this approach would allow facilities where waste is hardpiped to a sewer to maintain the current configuration without equipment modification. One commenter (A-90-23: IV-D-9) claimed that, for some processes, it will be impossible to determine the flow rate and concentration at the point of generation because sampling will be too difficult. Three commenters (A-90-19: IV-D-53; IV-D-73; IV-D-110) claimed that the proposed "point of generation" may be in closed piping or closed piping routed to controls, and these piping systems may have to be disconnected or a process unit shut down to determine whether a stream is a Group 1 or Group 2.

Three commenters (A-90-19: IV-D-32; IV-D-53; IV-D-75) claimed that the EPA should not be concerned with dilution of Group 1 streams because non-contact cooling waters and wastewaters are required to be separated and processes will not generate large enough quantities of non-HAP-containing wastewaters to dilute Group 1 streams. Two commenters (A-90-19: IV-D-32; IV-D-75) reasoned that the incompatibility of the streams and the costs associated with this method of wastewater management would discourage mixing. One commenter (A-90-19: IV-D-53) cited a report entitled "EPA, Contractors Engineering Report, Analysis of Organic Chemicals and Plastics/Synthetic Fibers Industries, Appendix S," Contract No. 68-01-6024, Effluent Guidelines Division, November 16, 1981, which presents process flow diagrams of SOCMI wastewater systems. The commenter (A-90-19: IV-D-53) claimed that these diagrams should be used to determine which wastewater streams are subject to the HON. Two commenters (A-90-19: IV-D-53; IV-D-112) stated that a decrease in the level of HAP's in wastewater due to mixing with other wastewater streams usually results in a decrease in overall HAP emissions. One commenter (A-90-19: IV-D-46) claimed that reduction of pollutants may occur in the hard-piped systems because chemicals may continue to react due to mixing.

Response: Although the final rule does not change the conceptual basis of the point of generation, the definition has been simplified and the phrase "integral to the process unit" has been deleted from the definition of point of generation. The EPA has determined that the point of generation means the location where process wastewater exits the chemical manufacturing process unit equipment. The primary function of chemical manufacturing process unit equipment is to produce chemical products. Wastewater management units may, in the process of treating wastewater, produce small amounts of product that can be recycled to the process. For example, steam strippers would generally be wastewater treatment units because they would not produce an appreciable amount of product.

The final rule allows the owner or operator to determine the characteristics of a wastewater stream (1) at the point of generation, or (2) downstream of the point of generation if corrections are made for changes in flow rate and VOHAP concentration. Such changes include losses by air emissions, reduction of VOHAP concentration or changes in flow rate by mixing with other wastewater streams, and reduction in flow rate or VOHAP concentration by treating or otherwise handling the wastewater streams to remove or destroy HAP's. The EPA has concluded that by including two options for how to determine the characteristics of a wastewater stream, the need for specifying whether a piece of equipment is integral to the process unit is irrelevant because HAP emissions will be accounted for if the Group 1/Group 2 determination is made downstream of the point of generation and an accurate flow rate and VOHAP concentration can be determined.

In response to comments about sampling within closed piping, the EPA agrees that options must be available to ensure worker safety, and clarifies that the owner or operator has several options under the HON when determining flow rate and concentration at the point of generation. Besides sampling, the owner or operator has the option to determine VOHAP concentration using process knowledge and bench-scale or pilot-scale test data, instead of sampling at the point of generation as summarized in §63.144(b) of the final rule. In §63.144(c) of the final rule, the EPA also allows other options for determining flow rate, including use of process knowledge based on production capacity and historical records. In addition, the EPA has added a provision in §63.144(d) of the final rule to allow an owner or operator to designate as a Group 1 wastewater stream a single wastewater stream or a mixture of wastewater streams. By choosing this option, an owner or operator is not required to make a Group 1/Group 2 determination. The owner or operator who elects to use this option must suppress emissions from the point(s) of generation by complying with all requirements in §§63.133 through 63.137 and must treat the stream in accordance with the requirements for Group 1 wastewater streams in §63.138. The EPA has added the option of designating a single wastewater stream or mixture of wastewater streams as a Group 1 wastewater stream because several commenters, who have facilities where HAP emissions are already suppressed from the point of generation to a downstream location, will not be required to determine wastewater stream characteristics at each point of generation. The owner or operator will still need to determine stream characteristics for the point of generation where stream(s) are designated as Group 1 wastewater streams in order to ensure that the stream is treated in accordance with §63.138. The primary difference between the final rule and the proposed rule is the addition of the option to designate Group 1 wastewater streams.

The EPA continues to prohibit dilution of Group 1 wastewater streams to meet compliance. The owner or operator who elects to determine flow rate and concentration for a mixture of wastewater streams at a location downstream of the point(s) of generation, and determines that the mixture of wastewater streams is a Group 2 wastewater stream, must verify whether each wastewater stream in the mixture is Group 1 or Group 2. All Group 1 streams in the mixture are subject to the control requirements of the wastewater provisions in §63.133 through §63.139. Commenters provided no data that dilution reduces the fraction of individual HAP's emitted from a given wastewater stream. The EPA maintains that the emission estimates for the HON represent reasonable estimates of the concentration of HAP's in the wastewater system and that the benefits of wastewater controls are not overstated.

Comment: One commenter (A-90-19: IV-D-102) stressed that the wastewater definition should clarify that a material is subject to the HON only at the point that it exits a process unit and enters an individual drain system. One commenter (A-90-19: IV-D-77) stated that the point of generation should be established after the last product recovery device and before the discharge to a wastewater treatment unit or disposal system.

Response: The EPA clarifies that a wastewater stream is subject to the wastewater provisions in the HON (1) where it exits the process unit equipment, and (2) if it meets the criteria in the definition of "wastewater" in §63.101 of subpart F. The EPA continues to allow the owner or operator to recycle wastewater and recover HAP's as a compliance option; however, the EPA emphasizes that when a Group 1 process wastewater exits a piece of process unit equipment, HAP emissions must be suppressed until the wastewater stream meets the treatment requirements.

Comment: One commenter (A-90-23: IV-D-9) suggested that the EPA define the point of generation as the point at which waste is combined with other waste and no longer has the potential for reuse or recycling. Two commenters (A-90-19: IV-D-32; IV-D-75) claimed that this definition would be consistent with RCRA and would encourage pollution prevention and recycling. Several commenters (A-90-19: IV-D-32; IV-D-34; IV-D-53; IV-D-62; IV-D-75; IV-D-77; IV-D-110) (A-90-23: IV-D-9; IV-D-20) stated that the definition of "point of generation" could be simplified by using the approach that is used to define a solid waste under RCRA, which would be the first air-water interface after the stream reaches the point where it is "destined for disposal." One commenter (A-90-19: IV-D-89) claimed that the definition of point of generation is inconsistent with RCRA and the Pollution Prevention Act and leads to a definition of waste which is not consistent with the Act, RCRA, and other air regulations such as NSPS subpart QQQ. One commenter (A-90-23: IV-D-9) claimed that the definition of point of generation will discourage waste recovery operations. One commenter (A-90-19: IV-D-89) claimed that the EPA defines the point of generation as the first point where a stream must be controlled, regardless of its potential to emit HAP's. Two commenters (A-90-19: IV-D-89; IV-D-92) claimed that the controls required at the point of generation and the definition of point of generation discourage, inhibit, and may disallow the reuse, reprocessing, or recycling of materials. One commenter (A-90-19: IV-D-89) argued that the material which is recycled to a process unit does not have the potential to emit HAP's and claimed that a resource recovery unit should be considered a process unit and material streams exiting the unit should only be subject to controls if they have the potential to emit HAP's. One commenter (A-90-19: IV-D-53) claimed that units used for recycling of wastewater will be regulated under the current definition of point of generation, even if the entire recycle system is suppressed.

Response: The EPA disagrees with the commenters who claim that the HON does not promote recycling and reuse of materials: Owners or operators are encouraged to recycle wastewater and residuals. Although control of HAP emissions is required from the point of generation, only Group 1 process wastewater streams, which the EPA has determined are a source of HAP emissions, require control. If an owner or operator generates Group 2 wastewater streams, the owner or operator is not obligated to control such streams.

The EPA maintains that the definition of "point of generation" in the HON is consistent with the concept of point of generation in RCRA. Because the point of generation is not explicitly defined in the RCRA regulations, but is commonly known to be the point at which a waste is destined for disposal, the EPA considers the HON and RCRA to be consistent. When a Group 1 wastewater stream exits any process unit equipment and enters an individual drain system, the stream must be controlled, treated, and disposed to suppress and destroy HAP's contained in the wastewater stream. The commenters did not provide examples where the definition of "point of generation" in the HON would be inconsistent with the Petroleum Refinery NSPS in 40 CFR part 60, subpart QQQ.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-53) contended that the EPA's concern for dilution and combination of waste streams is based on the erroneous assumption that equilibrium between the liquid phase and the vapor phase of VOHAP's occurs in the collection system.

One commenter (A-90-19: IV-D-53) indicated that the concentration of the VOHAP in the wastewater, and not the total mass of HAP in the wastewater, affects the emissions when vapor-liquid equilibrium is not reached. The commenter (A-90-19: IV-D-53) asserted that a decrease in concentration leads to a decrease in the driving force for volatilization, and therefore, the commenter (A-90-19: IV-D-53) claimed that dilution decreases HAP emissions.

Response: Based on information provided by commenters, the EPA has modified the collection system emission models. In the final rule, the EPA bases the emission estimates on 50 percent of equilibrium being achieved rather than equilibrium.

The EPA maintains, however, that mixing Group 1 and Group 2 wastewater streams in an individual drain system does not reduce the fraction of HAP's emitted from the system. The emission estimates for SOCMI facilities are based on characterization of the wastewater collection and treatment systems and the mixture of Group 1 and Group 2 process wastewaters that are managed in these systems. The EPA did not estimate emissions based on Group 1 streams alone so the reason for the comment is not clear. The rule is based on managing and treating Group 1 wastewater streams to remove or destroy HAP's which will reduce not only the VOHAP concentration but also the mass of HAP's in the wastewater stream. The emission reduction that will occur as a result of this treatment is due only to the reduction in the mass of HAP's, not the VOHAP concentration.

Comment: One commenter (A-90-23: IV-D-17) claimed that the current definition of "point of generation" will result in a significant increase in sampling, analysis, and recordkeeping. Although the HON allows the use of process knowledge to determine VOHAP concentration at the point of generation, the commenter (A-90-23: IV-D-17) claimed that regulatory agencies rarely accept process knowledge without analyses to demonstrate compliance.

Response: The EPA has tried to minimize sampling requirements by not requiring sampling at each point of generation. The HON includes additional sampling options downstream of the point of generation for a single wastewater stream or after mixing different wastewater streams. Additionally, the HON allows the owner or operator to designate that a wastewater stream or combination of wastewater streams is a Group 1 wastewater stream without sampling. The implementing agency may require additional data if an owner or operator uses process knowledge to determine whether the HON applies to a particular waste stream; however, the EPA continues to allow owners or operators to use process knowledge.

Comment: One commenter (A-90-19: IV-D-98) contended that by determining the applicability of the emissions standard at the "point of generation", the EPA is regulating HAP's before they can be emitted and should explain its authority to regulate emissions prior to the point of the first air/water interface.

Response: Emissions enter the atmosphere at the first point where an air/water interface exists. However, the EPA did not define the point of generation as the point where emissions can first enter the atmosphere, because a stream with a high VOHAP concentration may be mixed with more dilute streams prior to reaching the first air/water interface. Mixing a Group 1 stream with a Group 2 stream may result in a single Group 2 stream because of dilution. The total mass of HAP's however, is unaffected by dilution. Therefore, the HAP emissions from the combined streams will be the same or greater than the original Group 1 stream, depending on the HAP mass contribution of the Group 2 stream. Consequently, the EPA defined the point of generation at a point before dilution can occur in order to control emissions from all Group 1 streams.

Furthermore, HAP emissions are not "regulated" prior to the point of the first air/water interface. Rather, determination of whether or not a wastewater stream requires control may be done prior to the point of the first air/water interface. This determination must be performed before the wastewater stream is diluted and before any of the HAP's in the wastewater have a chance to volatilize. If a wastewater stream is determined at the point of generation to be a Group 1 wastewater stream, control is not required until the first air/water interface. If a Group 1 wastewater stream is never exposed to the atmosphere, control is not required at all.

4.1.6 Definition of "Waste Management Unit"

Comment: One commenter (A-90-19: IV-D-54) contended that since §63.138 specifies requirements for wastewater treatment processes, it should not also impose requirements on waste management units, which are regulated by §63.133 through

§63.137. The commenter (A-90-19: IV-D-54) is confused because the use of the term "waste management unit" in §63.138 seems to include wastewater tanks, surface impoundments, etc., which each have individual provisions specified in §63.133 through §63.137. The commenter (A-90-19: IV-D-54) stated that if §63.138 is meant to impose additional requirements on units regulated under §63.133 through §63.137, then the additional requirements should be specified in the individual sections and the term "waste management unit" should be deleted.

Response: The EPA clarifies that the definition of "treatment process" is a subset of "waste management unit" and both terms are defined in §63.111 of subpart G. The EPA continues to use both terms in §63.138 because the term "waste management unit" defined in §63.111 of subpart G is not limited to those collection and conveyance units that are specified in §§63.133 through 63.137. In fact, a waste management unit could be used to comply with the provisions of §63.138. Therefore, the EPA continues to use both terms throughout the regulation.

4.1.7 Solvent Use as a Feedstock

Comment: One commenter (A-90-19: IV-D-60) expressed concern that used solvents that are routinely collected in containers and either sent to offsite locations or used as a feedstock onsite, and which never enter an individual drain system, may be construed to be wastewater streams under the proposed definition of wastewater. The commenter (A-90-19: IV-D-60) provided an example scenario and requested clarification.

Response: The definition of "wastewater" in §63.101 of subpart F clearly states that a wastewater stream must enter an individual drain system in order to be considered a wastewater. If the solvents are used as feedstocks onsite or are sent offsite, then such streams would not be wastewaters.

4.1.8 Wastewater Generated from Fire Fighting

Comment: Two commenters (A-90-19: IV-D-33; IV-G-4) stated that §63.100(b)(3)(vi), which lists materials that are not subject to control under the wastewater provisions, should also exclude water generated from both fire fighting and deluge systems. Another commenter (A-90-19: IV-D-34) stated that covering drain systems may result in safety hazards during non-routine conditions (e.g., deluge water during fire or spill events). The commenter (A-90-19: IV-D-34) recommended that a provision be added for sources to obtain a waiver for process-specific safety reasons.

Response: The EPA agrees with the commenter and has added as §63.100(f)(3) of subpart F, an exclusion from the HON wastewater provisions for water that is generated by fire fighting and deluge systems and is discharged to a segregated sewer. It is unclear why the commenter states that covering drain systems may result in unsafe conditions during non-routine conditions. The EPA anticipates that properly designed wastewater collection and treatment systems will be equipped to handle non-routine conditions and that the installation of covers on drain systems will present no additional hazards.

4.1.9 Relationship Between Wastewater Tank and Storage Vessel Provisions

Comment: Several commenters (A-90-19: IV-D-17; IV-D-32; IV-D-33; IV-D-54; IV-D-64; IV-D-73; IV-D-75; IV-D-112) (A-90-23: IV-D-2; IV-D-20) argued that control of wastewater tanks should be managed under the storage vessel provisions instead of the wastewater provisions. The commenters (A-90-19: IV-D-17; IV-D-32; IV-D-33; IV-D-54; IV-D-64; IV-D-73; IV-D-75; IV-D-112) (A-90-23: IV-D-2; IV-D-20) stated that having two different requirements for tanks does not make sense in terms of the relative potential for the two types of tanks to emit HAP's. Three commenters (A-90-19: IV-D-17;

IV-D-32) (A-90-23: IV-D-20) stated that the EPA should change the definition of "storage vessel" in §63.101 to include product storage tanks and wastewater storage tanks. One commenter (A-90-19: IV-D-73) suggested including subparagraphs (1), (2), and (3) of the storage vessel definition from subpart F in the definition of wastewater tank.

Several commenters (A-90-19: IV-D-32; IV-D-75; IV-D-112) (A-90-23: IV-D-2) stated that the requirements should be based on the partial pressure of the HAP's in the tank. One commenter (A-90-19: IV-D-31) claimed that there is a potential for wastewater vessels to be classified as Group 1 although they would be classified as Group 2 storage vessels based on partial pressure. The commenter (A-90-19: IV-D-31) provided a hypothetical example of such a case. The commenter (A-90-19: IV-D-31) also claimed that not considering partial pressure for wastewater tanks will result in considerable expense to achieve marginal reductions in HAP emissions. The commenter (A-90-19: IV-D-31) stated that by using the storage vessel definition, the cost of controlling wastewater tanks would be reduced. The commenter (A-90-19: IV-D-31) supported the use of proposed wastewater tank definitions in cases where determining the total HAP partial pressure is difficult because of a highly mixed matrix or highly variable concentrations. Two commenters (A-90-23: IV-D-2; IV-D-77) claimed that the control of wastewater tanks should also be based on the size of the tank. One commenter (A-90-19: IV-D-32) provided partial pressure data for chemicals in strippability groups A, B, and C.

One commenter (A-90-19: IV-D-64) requested that the EPA set *de minimis* cutoffs based on size and vapor pressure for wastewater tanks in §63.133 and surface impoundments in §63.134, and stated that surface impoundments and controlled oil water separators should be regulated as a Group 1 or

Group 2 storage vessels, based on their capacity and maximum total HAP vapor pressure.

Response: The EPA agrees that it is appropriate to regulate wastewater tanks based on their potential for HAP emissions. Thus, the EPA has added language to the wastewater tank provisions in §63.133 that reflects the tank capacity and vapor pressure criteria used in the HON storage vessel provisions. The EPA also felt that it would be appropriate for the final HON wastewater provisions to be consistent with the proposed RCRA tank and container requirements, which will be in 40 CFR part 264 subpart CC.

In the final rule, the owner or operator must determine whether their wastewater tanks meet the criteria in table 4-1 of this section (in the final rule as table 10 of subpart G), which specifies both tank capacity and vapor pressure criteria.

TABLE 4-1. WASTEWATER TANK CAPACITY AND VAPOR PRESSURE CRITERIA

Tank capacity (m^3)	Vapor pressure (kPa)
75≤ and ≤151	≤13.1
≥151	≤5.2

The owner or operator must make this determination for any wastewater tank that manages Group 1 wastewater streams or residuals removed from such streams at both new and existing sources. If a wastewater meets the criteria specified in table 10 of subpart G, then the owner or operator must operate and maintain a fixed roof. If a wastewater tank exceeds the criteria specified in table 10 of subpart G, then the owner or operator must comply with paragraphs (b) through (h) of §63.133 and shall operate and maintain one of the emission control techniques specified in §63.133(a)(2)(i) through (a)(2)(iv).

4.1.10 Previously Installed Steam Strippers

Comment: Three commenters (A-90-19: IV-D-18; IV-D-32; IV-D-110) stated that steam strippers installed for other purposes than compliance with the wastewater provisions in the HON, including meeting the requirements of other regulations, should be grandfathered and limited to treatment of wastewaters for which they were designed (e.g., OCPSF effluent limitation guidelines, Benzene Waste NESHAP, pretreatment standards, and corporate waste minimization targets).

Response: The EPA is directed by the Act to control HAP emissions from wastewater. Although the rules mentioned by the commenters were not originally intended to control HAP emissions, in some cases, the rules may result in a reduction in HAP emissions from wastewater. The EPA has reviewed the overlap issues associated with other regulations including OCPSF effluent limitations, the Benzene Waste NESHAP, and NPDES pretreatment standards. However, the EPA has concluded that in most cases the EPA is unable to provide an overall exemption for steam strippers that were installed to comply with other regulations.

In §63.110 of subpart G of the final rule, the EPA provides specific guidance about several regulatory overlap issues by (1) specifying a combination of different requirements from the overlapping rule; (2) deferring to the requirements of one rule; or (3) allowing a case-by-case determination. Through these approaches, the EPA can ensure compliance with the HON and minimize duplicative effort.

Comment: One commenter (A-90-19: IV-D-85) disagreed with the provisions in §63.110(b)(2) of the proposed rule which exempt vents in wastewater treatment processes from the process vents requirements. The commenter (A-90-19: IV-D-85) stated that the EPA offers no justification for exempting vents associated with wastewater treatment from the requirements for process vents and that the maximum achievable emissions reduction standard precludes this exemption.

Response: Proposed §63.110(b)(2) stated that vents from recovery devices installed to control emissions from treatment operations that are in compliance with the requirements in §63.133 through §63.147 are not regulated as process vents. Rather, such vents have separate regulatory requirements and must achieve a 95 percent HAP removal. Therefore, the EPA has neither exempted these vents from control nor dually regulated such vents under the process vent provisions. The EPA maintains that the flow and concentration of HAP's that will be removed from the wastewater and therefore vented to an air emissions control device will be low compared to that in a vent stream from a reactor, air oxidation reactor, or distillation unit. Thus, if such a stream were regulated under the process vent provisions, it might not meet the process vent control criteria because of having a high TRE index value. In this case, the process vent would not require control. The EPA has determined, however, that it is appropriate to require 95 percent control of such streams since low concentration streams cannot typically be controlled to levels of 98 percent.

4.1.11 Control of Maintenance-Related Wastewater

Comment: Several commenters (A-90-19: IV-D-32; IV-D-34; IV-D-36; IV-D-62; IV-D-79; IV-D-86; IV-D-89; IV-D-92) (A-90-23: IV-D-20) asserted that cooling towers should not be subject to the HON because a MACT Standard for Industrial Process Cooling Towers will be developed by November 15, 1994.

Response: The MACT Standard for Industrial Process Cooling Towers will regulate only hexavalent chromium emissions from cooling towers. The HON regulates organic HAP emissions. Additionally, the EPA notes that emissions from cooling towers are caused by leaks, which may be occurring throughout the cooling process, and not just in the cooling tower. Leaks of this nature would not be addressed by the MACT Standard for Industrial Process Cooling Towers.

Comment: Two commenters (A-90-19: IV-G-10) (A-90-23: IV-G-5) expressed confusion regarding which maintenance wastewaters were subject to the HON. The commenters (A-90-19: IV-G-10) (A-90-23: IV-G-5) claimed that if process wastewater includes maintenance and turnaround wastewater as established by §63.110(e), then most hydrocarbon drains and water drains where water contacts process fluids would be subject to subpart G. The commenters (A-90-19: IV-G-10) (A-90-23: IV-G-5) expressed particular concerned with a phenolic sewer system, claiming that the sewer system would not be subject to the HON during normal operation because it only contains phenol, but would be subject to the HON during maintenance and turnaround because it is flushed with cumene. The commenters (A-90-19: IV-G-10) (A-90-23: IV-G-5) claimed that controlling the phenolic sewer would be the greatest expense, and that the impact of the HON on the phenolic sewer system was not evaluated. The commenters (A-90-19: IV-G-10) (A-90-23: IV-G-5) provided details on the phenol unit process.

Response: The proposed regulation did not include routine maintenance wastewater and maintenance-turnaround wastewater in the definition of process wastewater in §63.101. Routine maintenance wastewater, maintenance-turnaround wastewater, and process wastewater were listed as three separate types of wastewater in the definition of "wastewater" in §63.101 of the proposed rule. In the final rule, these terms have been clarified. The maintenance wastewater requirements have been moved to §63.105 of subpart F, and maintenance wastewater is now defined separately from wastewater in §63.101 of subpart F.

The phenolic sewer system is not subject to the HON wastewater provisions during normal operation, because phenol is not a regulated HAP for wastewater. Cumene and acetophenone are on the list of HAP's regulated for maintenance wastewater, so the maintenance operations are subject to the HON. However, the requirements for routine maintenance wastewater are now the same requirements as those proposed for maintenance-turnaround wastewater. There are no longer any specific control requirements for routine maintenance wastewater. The requirements of both types of maintenance wastewaters are addressed in the facility's start-up, shutdown, and malfunction plan.

Comment: One commenter (A-90-19: IV-D-33) stated that the EPA should clarify that §63.102(b)(1) and (b)(2) refer to those HAP's listed in §63.104.

Response: In the final rule, the maintenance wastewater provisions have been moved from §63.102(b)(1) of subpart F to a separate section, §63.105, entitled, maintenance wastewater requirements. In the final rule, the heat exchange system requirements have also been moved from §63.102(b)(2) to a separate section, §63.104, entitled, heat exchange system requirements. The provisions in §63.104 and §63.105 of subpart F clarify which HAP's are regulated for heat exchange systems and maintenance activities.

Comment: Two commenters (A-90-19: IV-F-1.2 and IV-F-4; IV-D-112) stated that the proposed HON included several insignificant wastewater streams including infrequently generated sources such as maintenance-related streams, which one commenter (A-90-19: IV-F-1.2 and IV-F-4) declared should not be included in the regulation. The commenter (A-90-19: IV-F-1.2 and IV-F-4) pointed out that the Benzene Waste NESHAP excludes routine maintenance streams, and that the HON should be consistent on this point.

Response: Although several commenters contended that the Benzene Waste NESHAP does not regulate maintenance wastewater streams, the EPA notes that the Benzene Waste NESHAP controls all waste and wastewater streams if the facility's total annual benzene exceeds 10 Mg/yr. Furthermore, the Benzene Waste NESHAP does not contain a specific exclusion of maintenance wastewater streams. In the final rule, the EPA continues to require good air pollution control practices for maintenance-related wastewater streams, but is not requiring owners or operators to achieve specific removal efficiencies.

Comment: One commenter (A-90-19: IV-G-4) stated that wastewater that is generated as part of an unplanned shutdown should be exempt from control requirements. The commenter (A-90-19: IV-G-4) suggested that the EPA should complete the studies required by section 112(d) of the Act to determine whether such control is appropriate. If such a provision was deemed necessary, the commenter (A-90-19: IV-G-4) suggested that the provision be added to §63.102(b) or in the start-up, shutdown, and malfunction provisions of the General Provisions (subpart A) for part 63.

Response: Wastewater that is generated during an unplanned shutdown is maintenance-turnaround wastewater as described in the definition of "wastewater" in §63.101 of subpart F in the proposed rule. Maintenance-turnaround wastewater includes maintenance wastewater generated during planned and unplanned shutdowns. There were not any control requirements for maintenance-turnaround wastewater in the proposed rule. The requirements for maintenance-turnaround wastewater in the proposed and final rules are the same and are addressed in the facility's start-up, shutdown, and malfunction plan.

4.1.12 Indirect Discharges

Comment: One commenter (A-90-19: IV-D-86) stressed that indirect discharges should not be subject to the HON for two reasons. The commenter (A-90-19: IV-D-86) claimed that the EPA had not correctly estimated emissions from systems which discharge to POTW systems and that the EPA had not considered the effect of flow rate on Fe. The commenter (A-90-19: IV-D-86) claimed that these systems experience vapor suppression by dilution with sanitary wastewater. The commenter (A-90-19: IV-D-86) provided a derivation which the commenter (A-90-19: IV-D-86) claims relates Fe to flow rate. The commenter (A-90-19: IV-D-86) suggested that the EPA do a sensitivity analysis to determine the effect of the assumed design size criteria on transfer surface area and transfer coefficients which are used to develop Fe.

Response: It is assumed that the commenter is referring to the claims regarding the effect of flow rate and dilution on Fe when stating that the EPA incorrectly estimated emissions from systems discharging to POTW's. The derivation presented by the commenter, which presents Fe as a function of flow rate, ignores the effect of increased flow rates on transfer surface area. As transfer surface area increases, Fe increases. The derivation presented by the commenter assumes that the waste management unit remains the same size regardless of flow, which requires a proportional decrease in the residence time of the waste in the waste management unit. The residence time is the volume of the waste management unit divided by the volumetric flow rate of the waste. In actual practice, a waste management unit of any given size has limited flexibility with regard to the flow rate of waste which it can accommodate. Therefore, larger waste flows require larger waste management units. Alternatively, multiple smaller waste management units may be employed. The end result is an increase in surface area which may result in an increase in Fe depending on the change in residence time. An increase in residence time will augment the increase in Fe resulting from any increase in transfer surface area. A decrease in residence time will offset the increase in Fe resulting from any increase in transfer surface area. Furthermore, the EPA does not recognize dilution as a viable treatment option.

4.1.13 Clarification of Cooling Tower System

Comment: One commenter (A-90-19: IV-D-34) stated that the EPA has not completed the analysis required under section 112(d) of the Act to include water from heat exchange systems (i.e., water from cooling towers and once-through cooling water systems) in the HON. Three commenters (A-90-19: IV-D-34; IV-D-50; IV-D-54) also stated that the EPA does not provide any information in the preamble or BID regarding emissions, the floor, or alternate control strategies from cooling water. The commenter (A-90-19: IV-D-34) stated that the CMA's study of leaks in chemical industry heat exchange systems (Cooling Tower Project Report, June 1992) indicates that heat exchanger leaks are "a rare occurrence" ranging from 3.4 to 12.9 years. The commenter (A-90-19: IV-D-34) suggested that the EPA delete all proposed controls on recirculating cooling water systems.

Response: Although leaks may not occur every year in a heat exchange system, the EPA has shown that leaks as small as 1 ppm can cause considerable emissions if left undetected. For example, an average size cooling tower (15,000 gpm) will emit almost 3 tons of organics in one month if a leak of 1 ppm is not detected. Table 4-2 of this chapter summarizes the possible emissions from heat exchange systems with a leak of 1 ppm. Larger leaks will produce proportionately larger air emissions. For example, a leak of 3 ppm will produce emissions three times as great as those presented in the table.

TABLE 4-2. EMISSIONS FROM HEAT EXCHANGE SYSTEMS (TONS)

Flow Rate (gpm)	Time Period (Months)			
	1	3	6	12
20,000	3.7	11	22	44
10,000	1.8	5.5	11	22
5,000	0.92	2.75	5.5	11
2,000	0.37	1.1	2.2	4.4

The EPA met all statutory criteria in its analysis of whether or not to regulate HAP emissions from heat exchange systems. The heat exchange system provisions, which control leaks from cooling towers and once-through cooling water systems, require the owner or operator to comply with monitoring, recordkeeping, and reporting requirements. The heat exchange system requirements are a specific example of an emission control program necessary for the source to be operated in a manner consistent with good air pollution control practices as specified in the General Provisions §63.6(e)(1)(i). These provisions were specified in the rule based on the potential for high HAP emissions. The cost of monitoring the system for leaks was considered as part of the monitoring, recordkeeping, and reporting requirements in the rule; and thus, met the statutory criteria.

With regard to the floor determination, the EPA is not required to determine a floor for heat exchange systems. The EPA is required to ensure that the standard for heat exchange systems is at least as stringent as the floor. The EPA has reviewed currently available information and has determined that leaks in heat exchange systems are more common than the commenter suggested.

<u>Comment</u>: One commenter (A-90-19: IV-D-73) supported the proposed definition of "heat exchange system" stating that it implies that the scope of a heat exchange system can be defined by the source to be the entire cooling tower system

rather than a single heat exchanger. However, the commenter (A-90-19: IV-D-73) stated that this definition might be interpreted to mean each individual heat exchanger. The commenter (A-90-19: IV-D-73) stated that the EPA should clarify the definition in §63.102(b) to state that a heat exchange system can include an entire recirculation system.

Response: The EPA intended for the definition of heat exchange system to mean the entire cooling tower system or the entire once-through cooling system and not a single heat exchanger. The EPA agrees with the commenter that the definition of heat exchange system may be misinterpreted. Therefore, the EPA has modified the definition in §63.101 of subpart F to clarify that a heat exchange system can include an entire recirculating system or once-through cooling system.

Comment: One commenter (A-90-19: IV-D-33) stated that the definition of "heat exchange system" should be clarified by excluding the parenthetical phrase "(river or pond water)", which actually limits the definition of heat exchange system. The commenter (A-90-19: IV-D-33) stated that the definition should include other sources of water as well.

Response: The definition of heat exchange system has been modified to clarify that river or pond water are only two examples of the type of water that is used in once-through cooling systems.

4.1.14 Alternative Methods for Determining Applicability

Comment: One commenter (A-90-19: IV-D-75) stated that direct injection gas chromatography methods should be allowed for determining applicability and for determining design criteria for equipment intended to treat single-phase streams. The commenter (A-90-19: IV-D-75) also stated that TOC methods should be allowed for determining applicability. The commenter (A-90-19: IV-D-75) claimed that direct injection gas chromatography and TOC methods are more readily available and more cost effective than Method 25D or Method 305.

Response: The commenter did not specify which direct-injection gas chromatography methods should be allowed. If the test method measures organic HAP concentrations in the wastewater and has been validated according to section 5.1 or 5.3 of Method 301, then the method meets the requirements of §63.144 and is therefore allowed for determining applicability and compliance. The EPA does not agree that TOC methods can be allowed for determining applicability. Currently available TOC methods measure organically bound carbon, not HAP concentration. The commenter provided no details on how TOC test results would be used as a surrogate parameter for VOHAP concentration. Without additional information, the EPA cannot further address the suggestions made by the commenter.

4.1.15 Exclusion for Laboratory Waste

Comment: One commenter (A-90-19: IV-D-54) suggested that laboratory waste should be specifically excluded from the definition of wastewater because such streams should not be subject to the Group 1/Group 2 determination requirements.

Response: Laboratory waste is exempt from subparts F, G, and H. Section 63.100(j)(1) of subpart F in the final rule exempts all research and development facilities, regardless of whether the facilities are located at the same plant sites as a chemical manufacturing process unit that is subject to subparts F, G, and H.

4.1.16 One Mg/yr Source-Wide Determination

Comment: One commenter (A-90-19: IV-D-77) suggested that the EPA should consolidate §§63.144(a) and (e) or explain why the paragraphs should remain separate.

Response: The EPA agrees that the relationship between paragraphs §63.144(a) and (e) in the proposed rule is confusing and has deleted the need to calculate an "annual wastewater quantity" as required by proposed paragraph (a). The EPA has reorganized §63.144 in the final rule to clarify the requirements an owner or operator to demonstrate whether the HON is applicable to a wastewater stream and to determine whether a wastewater stream is a Group 1 or Group 2 wastewater stream. In §63.144, the EPA continues to include the compliance demonstration for the 1 Mg/yr source-wide compliance option and also provides an additional option in paragraph (d), which allows an owner or operator to designate a single wastewater stream or a mixture of wastewater streams as a Group 1 wastewater stream.

In reorganizing §63.144, the EPA has changed proposed paragraph (e) to paragraph (c) in the final rule.

Comment: Two commenters (A-90-23: IV-D-1) (A-90-19: IV-D-86) agreed with having a mass flow rate *de minimis* value to minimize cost and secondary impacts from control of minor sources. Several commenters (A-90-19: IV-D-53; IV-D-62; IV-D-63; IV-D-73; IV-D-79; IV-D-86; IV-D-92; IV-D-110) (A-90-23: IV-D-1) expressed concern that the mass flow rate *de minimis* values for wastewater streams between the HON and Benzene Waste NESHAP are inconsistent. The commenters (A-90-19: IV-D-62; IV-D-63; IV-D-79; IV-D-86; IV-D-110) (A-90-23: IV-D-1) also expressed concern that the mass flow rate *de minimis* value of 2 Mg/yr in the Benzene Waste NESHAP is higher than the source-wide exemption from the control and treatment of Group 1 wastewater streams of 1 Mg/yr in the HON, even though many of the HAP's covered by the HON are less toxic than benzene. Several commenters (A-90-19: IV-D-32; IV-D-53; IV-D-63; IV-D-112) (A-90-23: IV-D-17) suggested that adopting the 2 Mg/yr mass flow rate cutoff used in the Benzene Waste NESHAP would minimize testing, collection, and treating of *de minimis* sources of HAP's while still allowing control of major emission sources. Another commenter (A-90-19: IV-D-85) disagreed with the facility-wide cutoff of 1 Mg/yr. The commenter (A-90-19: IV-D-85) claimed that a facility-wide exemption was allowed in the Benzene Waste NESHAP because the risk-based targets for benzene were exceeded by more than

1 megagram. The commenter (A-90-19: IV-D-85) stated that this justification does not apply to the HON.

Response: Although the HON is not a risk-based standard, the EPA continues to allow the 1 Mg/yr source-wide option in the final rule in §§63.138(c)(5) and (6) because compliance with the wastewater provisions for a SOCMI facility that generates only a low total HAP mass flow rate of table 9 compounds is very expensive. In addition, the EPA has determined that most facilities will elect to use this option to show compliance for wastewater streams with a low flow rate and high concentration. The EPA recognizes that having a source-wide *de minimis* value minimizes the impact of the HON on those facilities that have HAP-containing wastewater with low total loading. A source-wide compliance option was originally included in both the Benzene Waste NESHAP and the HON to address maintenance wastewater which often has a high concentration and a low flow rate. Because the requirements for managing maintenance wastewater in the HON have changed from the proposed rule, the EPA considered removing the 1 Mg/yr compliance option. However, the EPA continues to allow this option as it was proposed so that process wastewater streams which may have a high concentration and low flow rate are not subject to the control requirements in the HON.

4.1.17 Clarification of Requirements for Containers

Comment: Two commenters (A-90-19: IV-D-32; IV-D-73) stated that the EPA has failed to quantify emissions from containers and has failed to evaluate the environmental impact and cost of the proposed container regulations. Three commenters (A-90-19: IV-D-32; IV-D-73) (A-90-23: IV-D-20) argued that marine vessels, tank cars, and tank trucks should be excluded from the definition of container, because these vessels are best regulated in another section of the regulation (e.g., the transfer provisions) or another regulation. One commenter (A-90-19: IV-D-92) suggested making the requirements for containers similar to those found in RCRA [40 CFR 262.34(c)(1) and 261.4(d), (e), and (f)].

One commenter (A-90-19: IV-D-73) suggested excluding containers that are used less than 15 days. Several commenters (A-90-19: IV-D-32; IV-D-34; IV-D-54; IV-D-64; IV-D-73; IV-D-93) suggested that the EPA establish a *de minimis* capacity for containers, below which the containers would not be subject to the container requirements in §63.135. The commenters (A-90-19: IV-D-32; IV-D-34; IV-D-54; IV-D-64; IV-D-73; IV-D-93) recommended different capacities ranging from the size of laboratory sample bottles and shovels to 1 m^3. The commenters provided several reasons for this suggestion including: (1) small containers have little potential to emit HAP's; (2) a *de minimis* capacity would clarify the definition of "container" in §63.111 of subpart G; and (3) a cutoff level would narrow the definition of "container".

Response: The EPA maintains that containers holding HAP-containing water or process fluids at SOCMI facilities are a potentially significant source of HAP emissions, which are not adequately regulated by existing regulations. During the baseline analysis to estimate emissions from wastewater operations at SOCMI sources, the EPA estimated emissions from SOCMI sources using model plant scenarios. From this analysis, the EPA determined that SOCMI sources as a whole warranted emission control. The final rule specifies the management practices that must be followed to achieve HAP-emission reduction. The EPA's cost estimates assume that wastewater streams are routed to a feed tank for a steam stripper. Costs associated with containers are not relevant to this scenario. An owner or operator may elect to manage wastewater using containers, however, the EPA does not include this type of management as part of the emission control scenarios.

The EPA continues to include barges, ships, rail cars, and tank trucks as examples of containers in the definition of "container" in §63.111 of subpart G. This definition of container is consistent with the definition of "container" in both RCRA and the Benzene Waste NESHAP.

In response to several commenters' request that the EPA exempt smaller size containers from the control requirements for containers in §63.135, the EPA reviewed the types of smaller containers commonly used to manage Group 1 wastewaters or residuals generated from the treatment of such wastewaters, and concluded that very small containers with a capacity less than 0.1 m^3 (26.4 gallons) should not be subject to the container requirements in §63.135. The EPA has included this capacity threshold in the definition of "container" in §63.111 of subpart G. The EPA has decided not to regulate very small containers because: (1) such containers have little potential for air emissions; (2) the monitoring, recordkeeping, and reporting burden outweighs the environmental gain; and (3) lab bottles and small sampling containers were not intended to be regulated.

The EPA based this change on a review of container sizes commercially available from vendors which indicates that the capacities of safety cans, lab cans, disposal cans, and lab packs range from less than 0.004 m^3 (1 gallon) to 0.08 m^3. These types of small containers are used to collect small quantities of hazardous waste in laboratories and other ancillary operations at a SOCMI facility. The EPA incorporated the container size limitation into the definition of "container" in §63.111 of subpart G. In addition, the EPA has revised the control requirements for containers with a capacity less than 0.42 m^3. As discussed in section 2.2.4 of this BID volume, these containers are exempt from the submerged fill requirements. These containers are also not required to be inspected for leaks with Method 21 if DOT-approved containers are used.

The EPA has decided not to specifically exclude containers that are on-site for only a certain number of days. By providing a *de minimis* container size and allowing less burdensome compliance and monitoring requirements, the EPA decided that sufficient flexibility for complying with the HON is available without adding a specific exclusion for containers that are on-site for only a short time. A discussion about reduced monitoring requirements is provided in section 6.12 of this BID volume.

Comment: One commenter (A-90-19: IV-D-64) stated that if the EPA established *de minimis* cutoffs for wastewater tanks and surface impoundments, there would be no need for the regulation of containers.

Response: The EPA clarifies that both the proposed and final rules contain regulatory requirements for each waste management unit including wastewater tanks, surface impoundments, and containers. The EPA has incorporated several changes to the wastewater tank provisions in §63.133 which include the addition of tank capacity and vapor pressure thresholds. For additional discussion of these changes, refer to section 4.1.9 of this BID volume. The EPA maintains that regardless of any changes made either to the wastewater tank provisions in §63.133 or the surface impoundment provisions in §63.134, the container requirements in §63.135 continue to be necessary to control HAP emissions from containers. Containers, which by definition are portable, are not a subset of either wastewater tanks or surface impoundments, which are both defined as stationary waste management units. Therefore, the container requirements in the HON are not directly affected by any changes to either the wastewater tank or surface impoundment requirements.

4.2 DETERMINATION OF MOST STRINGENT STANDARDS

Comment: One commenter (A-90-19: IV-D-110) stated that the EPA's attempt at resolving conflicts and overlaps between the HON and other regulations in §63.103(d)(2), which requires the owner or operator to comply with the most stringent standards applicable to the emissions point, does not sufficiently clarify all compliance issues. As an example, the commenter (A-90-19: IV-D-110) suggested that facilities that have steam strippers that meet Benzene Waste NESHAP requirements may need to be reconfigured to meet the HON requirements. The commenter (A-90-19: IV-D-110) recommended that the EPA modify proposed §63.103(d)(2) to require facilities to meet the most stringent standards applicable to "sources" rather than "emission points." The commenter (A-90-19: IV-D-110) stated that this approach will reduce the burden of making a stringency determination for each emission point and will make comparisons between the HON and other rules simpler.

Response: The EPA agrees with the commenter that several regulatory overlap issues were unclear in the proposed rule. The EPA has clarified many of these issues in §63.110 of subpart G. For the final rule, the EPA continues to address most regulatory overlap issues based on specific emission points because comparing different regulations on a broader scale may be misleading and could cause air emissions that are subject to the HON to be uncontrolled. Refer to chapter 6 of BID Volume 2D for additional discussion about regulatory overlap and stringency decisions.

4.2.1 Overlap with the Benzene Waste NESHAP

Comment: One commenter (A-90-19: IV-D-102) cited a portion of the supplemental final Benzene Waste NESHAP rule that clarifies the distinction between product and waste (58 FR 3072, 3076-7) and suggested that the EPA use the language to clarify the scope of the definitions in the HON.

Response: The distinction between product and waste in the Benzene Waste NESHAP is analogous to the definition of wastewater in the HON. The intent of the HON is the same as the Benzene Waste NESHAP; materials are subject to the standards at the point they exit the production process equipment. To the extent language in the Benzene Waste NESHAP rule clarifies the EPA's intent, the language is equally relevant to the HON. The EPA has not, however, added the specific language for the Benzene Waste NESHAP.

Comment: One commenter (A-90-19: IV-D-75) recommended that benzene-containing wastes which are subject to the Benzene Waste NESHAP be exempt from the HON. The commenter (A-90-19: IV-D-75) expressed concern that because some facilities have recently installed equipment to comply with the Benzene Waste NESHAP, conflicting requirements between the two NESHAP's may result in expensive rework with no environmental benefit.

Response: The EPA disagrees with the commenter because the HON regulates 75 additional chemicals other than benzene. Without a compliance demonstration, the EPA cannot determine whether a piece of equipment that was installed to comply with the Benzene Waste NESHAP also will be in compliance with the HON. The EPA does encourage facilities to continue using equipment that was installed to comply with other regulations and nothing in the HON precludes the owner or operator from using such equipment. However, to comply with the HON, the equipment must reduce air emissions of all organic HAP's, including benzene, that are present in the wastewater stream and are listed on table 9 of subpart G of the final rule.

Comment: One commenter (A-90-23: IV-D-14) suggested deleting manholes, sumps, and lift stations from the HON definition of individual drain system to be consistent with the Benzene Waste NESHAP.

Response: The EPA maintains that air emissions from manholes, sumps, and lift stations should be controlled under the HON. Allowing such parts of a drain system to remain uncontrolled could allow emissions to escape to the atmosphere before the wastewater stream reaches a treatment process. Therefore, the EPA continues to include these components in the definition of individual drain system.

Comment: One commenter (A-90-23: IV-D-14) supported the exemption of POTW's from the Benzene Waste NESHAP and suggested adding this exemption to the HON. The commenter (A-90-23: IV-D-14) claimed that POTW's lack the funds to install the required controls. One commenter (A-90-19: IV-D-110) opposed the requirement for POTW's to comply with HON provisions, reasoning that the pretreatment requirements under the CWA are adequate to control HAP emissions. One commenter (A-90-19: IV-D-58) expressed concern that not allowing biological treatment as RCT may increase the potential for POTW's to decline to accept treated wastewater due to applicability and compliance uncertainty with the HON.

Response: Neither the Benzene Waste NESHAP nor the HON allow owners or operators to avoid control of HAP emissions by sending wastewater offsite for treatment. Under the HON, the POTW is not subject to the HON requirements, but the owner or operator of a SOCMI facility must ensure that Group 1 wastewater that is sent offsite to a POTW or other facility for treatment or recycling is handled in compliance with the HON.

4.2.2 Overlap with the Resource Conservation and Recovery Act

Comment: One commenter (A-90-19: IV-D-92) claimed that the definition of "waste management unit" is not consistent with RCRA, CWA, and other air quality rules such as NSPS subpart QQQ. The commenter (A-90-19: IV-D-92) also indicated that "waste" was not defined in the HON. The commenter (A-90-19: IV-D-92) urged the EPA to define "waste" and "waste management unit" consistent with RCRA (§261.3 and 260.10, respectively).

Response: The EPA points out that the HON does not define the term "waste" because the HON does not apply to waste. In §63.111 of subpart G, the HON provides definitions for both "wastewater stream" and "waste management unit." Although the definition of waste management unit in the HON may differ from the definition in other rules, the definition in the HON explains the scope, use, and meaning of the term as it is used in the HON.

Comment: Three commenters (A-90-19: IV-D-32; IV-D-54; IV-D-113) stated that the EPA has correctly exempted RCRA-permitted treatment units from the HON. However, the commenters (A-90-19: IV-D-32; IV-D-54) claimed that some of the provisions are contradictory and erroneously referenced. The commenters (A-90-19: IV-D-32; IV-D-54; IV-D-113) stated that §63.138(l) should declare that RCRA units, which are exempt under §63.138(l), are considered to be in compliance with §63.138(d), (b), (c), and (g). The commenters (A-90-19: IV-D-32; IV-D-54; IV-D-113) stated that these RCRA units should not be subject to §63.138(f) and (i). Furthermore, the commenter (A-90-19: IV-D-32) stated that since §63.138(c) references §63.131(d) and §63.138(f), these units should not be subject to either §63.131(d) or §63.138(f). One commenter (A-90-19: IV-D-54) stated that RCRA-regulated sources should comply with (e), (h), (j), and (k).

Response: The EPA agrees with the commenter that in the proposed rule §63.138(l) of subpart G contained several contradictory and erroneous references. In the final rule in §63.138(m) of subpart G, the EPA has corrected these errors so that a treatment process, wastewater stream, or residual is considered in compliance with the requirements of §§63.138(b), (c), and (h), as applicable and is exempt from the requirements of §63.138(j), which requires a design analysis or performance test, provided that the owner or operator is in compliance with §§63.138(f), (i), (k), and (l) and documents that the treatment process, wastewater stream, or residual is in compliance with §63.138(m)(1) through (3). Emissions from wastewater must be controlled until the point that the HAP's are destroyed. Prior to this point, an owner or operator must ensure compliance with §§63.133 through 63.137. The EPA notes that the placement in the final rule of several of the citations differs from the proposed rule.

Comment: One commenter (A-90-19: IV-D-92) requested that a definition of "empty container" similar to the definition under RCRA in 40 CFR part 261.7 be included in the HON.

Response: Because the HON does not apply to the disposal of hazardous waste, the issue of whether a container is "empty" under RCRA is not directly relevant to the HON. Regulatory overlap with RCRA may occur when an owner or operator of a SOCMI facility elects to send residuals placed in containers to an off-site treatment or recycling facility. In such cases, the owner or operator must ensure that the residuals are managed in compliance with the HON. In cases where the residuals also are hazardous waste, neither the HON nor RCRA apply to any material that may be remaining in a container that meets the "empty" criteria in 40 CFR part 261.7. Although the commenter does not specify why a definition of "empty container" should be added to the HON, the EPA clarifies that any container that has been emptied using practices that are commonly employed to remove materials from that type of container (e.g., pouring, pumping) are no longer required to meet the container requirements specified in §63.135 of subpart G of the HON.

Comment: One commenter (A-90-19: IV-D-92) suggested that the exemption for conditionally exempt small quantity generators found under RCRA in 40 CFR part 261.5 be included in the HON.

Response: The RCRA provision in 40 CFR part 261.5, which allows hazardous waste generators who generate small quantities of hazardous waste to be exempt from most of the hazardous waste management provisions, was established to relieve generators of small quantities of waste from the financial burden associated with RCRA compliance. These conditionally exempt small quantity generators (CESQG) are required to manage their waste using methods that protect human health and the environment.

Under the Act, provisions already exist which exempt small quantity generators of HAP emissions from the requirements in the HON. In section 112(a) of the Act, Congress defines "major source" as a stationary source or group of stationary sources that have the potential to emit in aggregate, 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAP's. Because the HON applies only to major sources, any SOCMI plant that is not a major source is not subject to the HON. Therefore, the EPA is not adding a provision similar to the CESQG exemption in RCRA.

Comment: One commenter (A-90-19: IV-D-92) suggested that listed and characteristic hazardous wastes should not be covered by the HON, because they are regulated under RCRA (40 CFR part 264 subparts AA and BB and 40 CFR part 265 subparts AA, BB, and CC).

Response: The HON wastewater provisions are applicable to all HAP's listed on table 9 of subpart G in the final rule regardless of whether some of the HAP's may also be classified as listed or characteristic wastes under RCRA. The primary purpose of the RCRA regulations is to require safe management of hazardous waste from "cradle to grave." Although the RCRA regulations do contain several provisions pertaining to the control of air emissions, the Act specifies that the EPA promulgate regulations that control the emission of HAP's to the air. The RCRA requirements in 40 CFR parts 264 and 265 subparts AA and BB focus on the control of emissions from process vents and equipment leaks. The EPA also has proposed subpart CC provisions which will require control of air emissions from tanks and containers, but these requirements have not been finalized. These RCRA requirements are not sufficient to control HAP emissions from SOCMI facilities. The EPA is trying to minimize the burden of overlapping regulations and has provided the option for a case-by-case determination for regulatory overlap between the HON and RCRA in §63.110 of subpart G of the final rule.

Comment: One commenter (A-90-19: IV-D-45 and IV-F-7.7) expressed concern that emissions from RCRA corrective action hazardous waste surface impoundments were excluded from control under the HON.

Response: The EPA clarifies that the HON does not apply to corrective actions under RCRA. The RCRA regulations designate the procedures for implementing corrective actions. The HON applies to chemical manufacturing process units at major sources that manufacture as the primary product one or more of the chemicals listed in table 1 of subpart F of the final rule and use as a reactant or manufacture as a product, by-product, or co-product one of the organic HAP's listed in table 2 of subpart F of the final rule. For additional discussion on the applicability of the HON, the commenter should refer to BID volume 2D.

4.2.3 Overlap with the Clean Water Act

Comment: One commenter (A-90-19: IV-D-34) disagreed with the provisions in §63.132(i)(2), which require that an owner or operator be responsible for the treatment of wastewater once it has been sent offsite to a facility that is not under the control of the owner or operator. The commenter (A-90-19: IV-D-34) stated that this provision is virtually impossible to comply with and does not consider the significant investment in place to control these wastewater discharges and comply with NPDES pretreatment requirements. Two commenters (A-90-19: IV-D-33; IV-D-110) stated that the HON should not impose redundant or conflicting requirements for wastewater treatment at plants which are already subject to CWA requirements. One commenter (A-90-19: IV-D-73) suggested deleting §63.132(i)(1) and (2) from the wastewater provisions, because small plants currently using POTW's cannot ensure that POTW's will comply with §63.138(c). The commenter (A-90-19: IV-D-73) claimed that these small plants would have to treat their own Group 1 wastewater streams which may not be technically feasible or cost effective.

Two commenters (A-90-19: IV-D-33; IV-D-34) suggested that wastewater transfers to an off-site POTW as defined by the 40 CFR 403 regulations should be exempt from §63.132(i), since POTW's will be subject to future MACT regulations. One commenter (A-90-19: IV-D-33) provided background information about the development and stringency of the pretreatment standards that must be met before wastewater is sent to a POTW. The commenter (A-90-19: IV-D-33) also provided a copy of an affiliated plant's permit with a local POTW to illustrate that the permit designates specific levels of pollutants that can be sent to the POTW.

The commenter (A-90-19: IV-D-33) agreed with the EPA that it is a facility's responsibility to manage wastewater onsite up to the point where it is discharged through a connection to the POTW system. The commenter (A-90-19: IV-D-33) contended, however, that the POTW is responsible for "transport" of the wastewater from the plant site to the POTW and for treatment of the industrial wastewater at the POTW. The commenter (A-90-19: IV-D-33) suggested that wastewater should no longer be regulated under the HON once it is discharged to a POTW.

Response: To ensure control of HAP emissions from wastewater, the EPA continues to require owners or operators to certify that any Group 1 wastewater stream that is sent offsite for treatment is controlled for air emissions in accordance with the HON. Without this requirement, nothing would prevent owners or operators from sending untreated wastewater to an offsite location where HAP's could be emitted. Even if the offsite location was a permitted POTW, the CWA may not require a reduction in HAP emissions that is equivalent to the HON, therefore owners or operators of SOCMI plants shall either comply with the requirements of the HON onsite or ensure that equivalent emission suppression and treatment techniques are used. Refer to section 6.0 in BID volume 2D for additional information about the overlap of the HON with other regulations.

However, the EPA has clarified §63.132(i)(2) to allow wastewater treatment offsite by facilities that meet the provisions of today's regulation, or a federally-approved alternative standard. The proposed rule would have required that a source treating wastewater covered by this rule meet only the applicable treatment requirements contained therein, unintentionally excluding sources where alternative standards in lieu of this regulation have been issued to the wastewater-treating source. Specifically, acceptable alternative standards include those granted under §63.102(c), where equivalent emission reductions have been demonstrated; and subpart D, the Early Reductions provisions, where a source has been granted a 6-year extension from meeting the provisions of this rule, in return for achieving reductions several years earlier than otherwise required and accepting a mass emissions "cap" limiting HAP emissions to 10 percent or less of what they were prior to reductions. While the latter alternative may or may not be as stringent as the provisions of this rule, the achievement of emission reductions earlier than otherwise required more than makes up for a tighter section 112(d) standard, and the emissions cannot exceed the alternative standard, including emissions from additional wastewater treated by the source. At the end of the Early Reductions compliance extension, the source must meet today's standards. Both types of alternative standards are subject to public review and comment and will become title V permit conditions.

Comment: One commenter (A-90-19: IV-D-32) argued that SOCMI plants that discharge wastewaters to POTW's should not be required to notify the POTW of such discharges, and should not have to demonstrate compliance with §§63.133 through 63.138 of the HON. Several commenters (A-90-19: IV-D-32; IV-D-86; IV-D-73) advised that indirect discharges be controlled under a future MACT standard for POTW's. One commenter (A-90-19: IV-D-32) suggested that generators of Group 1 wastewaters manage them as required by the HON up to the point of discharge to the POTW collection system, at which point the existing CWA regulatory programs should take precedence.

Response: The EPA disagrees with the commenters' suggestion to allow generators of Group 1 wastewater streams to manage such streams only up to the point of discharge to a POTW. The existing CWA regulatory programs require POTW's to comply with pollutant effluent limitations, which do not control air emissions. For this reason, the EPA continues to require generators of Group 1 wastewater streams to ensure that the receiving POTW is in compliance with all applicable requirements in §63.133 through §63.139 of the HON.

Comment: One commenter (A-90-23: IV-D-2) claimed that for materials that are easily biodegraded, the requirement to treat prior to discharge to a biological treatment system or to a POTW should be eliminated.

Response: The HON does not require treatment of wastewater prior to discharge to a biological treatment unit or a POTW. In §63.132(i) of the final rule, the HON does require suppression of emissions in accordance with §63.133 through §63.137 during transport from the point of generation to the waste management unit.

Comment: One commenter (A-90-19: IV-D-33) stated that the requirements in proposed §63.138(l) should be expanded to allow an exemption if the wastewater is treated pursuant to OCPSF 40 CFR Part 414 regulations, which are detailed in a CWA permit. The commenter (A-90-19: IV-D-33) stated that proposed §63.138(l) allows wastewater that is managed in compliance with a final permit under 40 CFR Part 270 (i.e., RCRA) to be exempt from certain HON wastewater provisions. To illustrate the similarity between RCRA permit requirements and CWA permit requirements, the commenter (A-90-19: IV-D-33) provided a portion of an NPDES permit, which requires extensive monitoring recordkeeping and reporting requirements to ensure compliance.

Response: The EPA clarifies that proposed §63.138(l) does not allow reduced requirements under the HON when treating wastewater using any treatment unit that is permitted under RCRA 40 CFR part 270, but rather allows reduced requirements only for those permitted RCRA treatment units that already meet the requirements of the HON. The EPA has not expanded proposed §63.138(l) [which is §63.138(m) in the final rule] to specifically include treatment that is performed in accordance with OCPSF requirements in 40 CFR part 414; however, nothing in the HON precludes an owner or operator from using such treatment to achieve compliance with the HON. In addition, owners or operators may demonstrate compliance with the HON through the use of the records and reports that are required by the OCPSF rules.

4.2.4 Underground Injection Wells

Comment: Three commenters (A-90-19: IV-D-32; IV-D-61; IV-D-112) stated that the requirements in proposed §63.138(l) should clearly state that all wastewater streams destined for disposal via an underground injection well are exempt from all requirements of proposed §63.138(e),(h),(j), and (k). The commenters (A-90-19: IV-D-32; IV-D-61; IV-D-112) also stated that the EPA should extend the exemption which is currently limited to RCRA permitted wells, to include any underground injection well permitted under 40 CFR 144-147. One commenter (A-90-19: IV-D-61) asserted that Class I nonhazardous wells have construction, operating, testing, monitoring, and reporting requirements identical to RCRA wells, with the exception that a "no migration" petition is not required for the permitting of a nonhazardous well.

Response: The EPA agrees with the commenters that the exemption in §63.138(m) of subpart G of the final rule should be expanded to include not only Class I hazardous waste wells that are permitted under RCRA in 40 CFR part 270, but also Class I nonhazardous wells, Class II, III, IV, and V wells permitted under 40 CFR 144. The EPA has expanded this provision to include additional categories of injection wells reasoning that once a wastewater is pumped into the ground, no air emissions will result. The owner or operator of a SOCMI facility who sends wastewater for disposal via an underground injection well must ensure that air emissions are suppressed in the collection and conveyance system for all Group 1 wastewater streams and that such a system is in compliance with all applicable HON requirements prior to the point where the wastewater is pumped into the ground.

4.3 GROUP 1/GROUP 2 DETERMINATION

Comment: One commenter (A-90-19: IV-D-33) stated that, since §63.144(b) of the proposed rule allows the use of engineering calculations to define the wastewater characteristics at the point of generation and such calculations may be based on samples taken at the first air/water interface, these calculations should also be available to determine Group 1/Group 2 applicability at the first air/water interface.

Response: The provisions in §63.144 of subpart G in the final rule include the test methods and procedures allowed for determining applicability of the HON wastewater provisions (i.e., whether a wastewater stream meets the flow and concentration criteria in the definition of "wastewater stream") and for determining Group 1/Group 2 status. In the final rule, the title of §63.144 of subpart G has been revised to clarify that the procedures in that section are for both applicability and Group 1/Group 2 determination.

Comment: One commenter (A-90-19: IV-D-77) stated that the EPA should change the minimum average flow rate for Group 1 wastewater streams at new sources from 0.02 ℓpm to 12 ℓpm for continuous flow streams, because equipment is not commercially available to treat streams with a flow less than 12 ℓpm.

Response: The EPA clarifies that process wastewater streams may be treated on an individual or a combined basis. An owner or operator may combine Group 1 process wastewater streams for treatment. The EPA also assumed that the wastewater streams that are subject to the wastewater provisions would be collected in a holding tank before being sent to the control equipment. Holding tanks can be used to equalize the flow of the wastewater to the control device. Therefore, wastewater streams with low flow rates can be collected in a holding tank and then pumped to the control device at the appropriate flow rate when the holding tank is full.

Comment: One commenter (A-90-19: IV-D-85) claimed that the EPA should lower the total VOHAP average concentration for Group 1/Group 2 criteria for existing sources to 10 ppmw to prevent emissions from wastewater streams which contain more hazardous or more volatile pollutants than benzene. The commenter (A-90-19: IV-D-85) also suggested that the 10 ppmw concentration cutoff apply to all HAP's regulated by the HON, and not just table 9 compounds. The commenter (A-90-19: IV-D-85) stated that the Act requires regulation of all compounds listed in section 112(b). The commenter (A-90-19: IV-D-85) expressed concern about the total emissions from compounds on table 1 that may be generated and not controlled because the Group 1/Group 2 criteria for existing sources is based on the concentration of only table 9 compounds.

The commenter (A-90-19: IV-D-85) recommended that the EPA eliminate cutoffs for existing sources, so that facilities will not be encouraged to pipe new source wastewater streams into existing systems. The commenter (A-90-19: IV-D-85) stated that if the EPA continues to require a concentration cutoff of 10 ppmw for new sources, the cutoff should apply to aggregated VOHAP's from all chemicals regulated under the rule or at least apply to aggregated table 8 compounds. The commenter (A-90-19: IV-D-85) claimed that a wastewater stream containing a total of 10 ppmw of several table 8 compounds is as significant as a waste stream containing 10 ppmw of a single table 8 compound.

Response: After reviewing the impact that the HON will have on existing SOCMI sources, the EPA is not lowering the Group 1/Group 2 determination criteria for compounds listed on table 9. The wastewater provisions in the HON focus on controlling air emissions from wastewater collection and treatment systems. The compounds listed on table 9 represent those volatile organic HAP's which will be emitted from wastewater if they are not controlled. The inorganic HAP's in section 112 of the Act will not be emitted into the air from wastewater handling and treatment operations. Thus, it is not necessary or appropriate to include them as regulated compounds. Many of the HAP's cannot exist in water because they react to form other compounds. Other organic compounds have inherent characteristics such that they are not emitted to the air, and the EPA finds no purpose for requiring emission suppression and treatment for chemicals with no potential to emit. In the case of cooling towers, the EPA does require the owner or operator to monitor for all HAP's listed on table 1 of subpart F because the cooling tower acts as an air stripper, which could generate air emissions from HAP's that are not on table 9 of subpart G.

In response to the commenter's concern that the control requirements for both new and existing sources should be based on a concentration of $\geq$ 10 ppmw, the EPA states that the wastewater provisions for new sources were established based on the best-controlled similar source at the floor. The best-controlled similar sources were subject to the Benzene Waste NESHAP (40 CFR part 61, subpart FF) and the Vinyl Chloride NESHAP (40 CFR part 61, subpart F), which require control of streams containing greater than or equal to 10 ppmw benzene or vinyl chloride. The EPA does not know of any source using steam stripping to treat wastewater streams that contain a total loading of 10 ppmw organic. Thus, requiring such a level of control would constitute control beyond the floor. At the floor, the cost effectiveness of control for the proposed option was $495 per megagram. The EPA estimates that the cost effectiveness of implementing the commenter's preferred option would be $1,690 per megagram. The EPA has determined that the cost of implementing the commenter's option, which is more stringent than the floor, is burdensome and prohibitive.

Comment: One commenter (A-90-19: IV-D-85) recommended that the EPA regulate all wastewater streams from new and existing sources with a flow rate greater than 0.02 ℓpm regardless of their concentration. The commenter (A-90-19: IV-D-85) suggested that only streams falling below stringent concentration and flow rate limits should qualify for exemption. The commenter (A-90-19: IV-D-85) expressed concern about emissions from wastewater streams with low flow rates and high concentrations. The commenter (A-90-19: IV-D-85) claimed that the EPA has provided no justification for the Group 1/Group 2 determination flow rate and concentration criteria for existing sources other than cost-effectiveness and that the cost-effectiveness justification does not make sense in light of the low cost of treating wastewater streams.

Response: The concern expressed by the commenter is addressed by §63.132(g)(1) which states that process wastewater streams with either (1) a total VOHAP average concentration of table 9 compounds greater than 10,000 ppmw and any flow rate, or (2) a total VOHAP average concentration is greater than or equal to 1,000 ppmw and the average flow rate is greater than or equal to 10 ℓ/m, are Group 1 streams. The wastewater provisions of the HON require treatment of Group 1 wastewater streams. The commenter did not provide documentation supporting the statement that the cost-effectiveness approach used by the EPA in determining the applicability criteria for the wastewater provisions was unfounded. The commenter also did not provide any information on the cost of wastewater treatment. The details of the EPA's cost analysis were described in the proposed BID and revisions to the analysis are documented in memoranda in the docket. The EPA is required by §112(d)(2) of the Act to consider cost in establishing MACT standards.

4.3.1 Testing at Peak Levels for Applicability Determination

Comment: Several commenters (A-90-19: IV-D-32; IV-D-77) (A-90-23: IV-D-20) stated that the EPA should change the language defining "annual average flow rate" in §63.144(e)(1) to clarify that the maximum annual average production capacity should be used to calculate the annual average flow rate. The commenter (A-90-19: IV-D-32) stated that the EPA should clarify in §63.144(e)(2) that the selection of the "highest average flow rate" as referred to in §63.144(e)(2) is the same as the annual average flow rate. One commenter (A-90-23: IV-D-20) stated that §63.144(e)(3) should allow a source to use process knowledge to estimate the flow rate at the point of generation, which would be consistent with the option allowed in §63.144(e)(1).

Response: The language defining "annual average flow rate" in proposed §63.144(e)(1) has been revised in §63.144(c) of the final rule to clarify that the maximum annual average production capacity should be used in estimating the annual average wastewater flow rate or the total annual wastewater volume. The term "average flow rate" has been revised to read "annual average flow rate" to further clarify the intent of the procedures in §63.144(c) in the final rule. Owners or operators who desire to use process knowledge to estimate the annual average flow rate can use the provisions of §63.144(c).

4.3.2 Determining VOHAP Concentration

Comment: One commenter (A-90-19: IV-D-64) stated that in §63.144(b)(1) engineering judgment could be a satisfactory basis for concluding that the VOHAP concentration in a stream will be minimal. For example, the commenter (A-90-19: IV-D-64) stated that if the pressure of steam in a heat exchanger will always be higher than the pressure of the process fluid being heated or cooled, the probability of a HAP leak into the steam and eventually into the steam condensate system will be extremely low. The commenter (A-90-19: IV-D-64) requested that such an example be added to the final rule.

Response: The EPA agrees with the commenter (A-90-19: IV-D-64) that engineering judgement is an allowed method for determining the VOHAP concentration in a wastewater stream for applicability and Group 1/Group 2 determination. The provisions in §63.144(b)(3) of the final rule specifically

allow knowledge of the wastewater for determining the VOHAP concentration, provided the owner or operator has proper information to document the engineering judgement.
Section 63.104 of subpart F exempts heat exchange systems operating at a pressure at least 35 kilopascals greater than the maximum pressure on the process side from the heat exchange system requirements. Heat exchangers using steam as the heating fluid are regulated by subpart G. However, §63.144(b) does not cite specific examples of how process knowledge can be used to determine the VOHAP concentration in a wastewater stream. The owner or operator would only need to provide documentation of the pressure of the steam and the pressure of the process fluid to demonstrate that the VOHAP concentration in the steam condensate is negligible.

Comment: One commenter (A-90-23: IV-D-20) suggested that §63.144(b) should be modified to allow an owner or operator to determine the average VOHAP concentration based on "process wastewater," rather than "wastewater stream," since both Group 1 and Group 2 wastewater streams include only process wastewater.

Response: Group 1/Group 2 determinations are made for wastewater that is discharged from a chemical manufacturing process unit to an individual drain system. The EPA has added a separate definition for "process wastewater" to the final rule to further clarify which wastewaters are subject to Group 1/Group 2 determinations.

Comment: Two commenters (A-90-19: IV-G-10) (A-90-23: IV-G-5) were unsure if the total volatile portion of the organic HAP meant the total VOHAP average concentration of only table 9 compounds. The commenters (A-90-19: IV-G-10) (A-90-23: IV-G-5) claimed that there are compounds that do not appear on table 9 of §63.131 or table 1 of §63.104 that are volatile and that are included in the list of SOCMI production process chemicals regulated under subparts F and G. The commenter (A-90-23: IV-G-5) gave acetone as an example.

Response: The EPA clarifies that only those HAP's listed on table 8 and table 9 of subpart G are included in the determination of total VOHAP average concentration for the HON. Table 9 contains only those volatile organic HAP's for which the EPA has identified a potential to be emitted from wastewater. Table 8 is a subset of table 9 and contains compounds which have a volatility equal to or greater than the volatility of benzene, as defined by the Henry's law constant.

Acetone is not a HAP and is therefore not regulated under the HON. However, acetone is listed as a SOCMI production process subject to the HON in table 1 of subpart F because the acetone production process uses HAP compounds as raw materials which may be released to the environment.

Comment: One commenter (A-90-19: IV-D-73) supported the provisions which allow alternatives to direct measurement by EPA methods when determining VOHAP concentration at the point of generation.

Response: Section 63.144(b) of the final rule presents the different ways that an owner or operator can determine the VOHAP concentration for the point of generation. The provisions allow knowledge of the wastewater, bench-scale or pilot-scale test data, and direct measurement by EPA methods. The EPA has allowed alternatives to direct measurement to provide flexibility to owners or operators of a facility where other methods are sufficient.

4.3.3 Sampling at Point of Generation

Comment: One commenter (A-90-19: IV-D-46) advised that point of generation sampling may not be possible for tanks that are inaccessible, pressurized, constructed of special materials, or designed to flow to a common drain header.

Response: The EPA clarifies that sampling at the point of generation is not required. Owners or operators can use knowledge of the wastewater or bench-scale or pilot-scale test data; or may designate a single wastewater stream or a mixture of wastewater streams as a Group 1 wastewater stream without sampling at the point of generation.

Comment: One commenter (A-90-19: IV-D-46) suggested that point of generation sampling decisions be made by facility operators based on the product and system characteristics.

Response: In both the proposed and final rule, the EPA allows an owner or operator to apply knowledge to determine wastewater characteristics at the point of generation. In the final rule, both the total VOHAP average concentration or the average VOHAP concentration of each individual organic HAP and the annual average flow rate may be determined downstream of the point of generation at a location when two or more wastewater streams have been mixed and prior to treatment. However, the owner or operator must make corrections for any changes in VOHAP concentration and flow rate due to the mixture of wastewater streams. The EPA clarifies that the point of generation is a fixed point, as defined in the final rule.

Comment: One commenter (A-90-19: IV-D-89) reported that there were no sampling techniques specified for wastewater. The commenter (A-90-19: IV-D-89) stated that only the water phase of a sample should be analyzed because the hydrocarbon phase is usually recovered and recycled to the process. The commenter (A-90-19: IV-D-89) claimed that the hydrocarbon phase should only be analyzed if it enters an uncontrolled waste treatment unit.

Response: The EPA clarifies that Method 25D provides sampling methods and procedures for wastewater. The EPA disagrees that only the water phase of a sample should be analyzed because the total VOHAP concentration defines whether a wastewater stream is Group 1 or Group 2. Without analyzing the entire sample, HAP emissions would occur without control even if the oil was eventually recycled. Total VOHAP is determined at the point of generation or downstream of the point of generation if corrections are made for any HAP losses that occur after the point of generation.

LIST OF TABLES

5.0 COMPLIANCE OPTIONS

5.1 TARGET REMOVAL EFFICIENCIES

Comment: One commenter (A-90-19: IV-D-56) suggested that removal efficiency variances be allowed because removal efficiencies are dependent on the matrix of compounds in the wastewater and many of the strippability group A compounds cannot achieve the 99 percent target removal efficiency. The commenter (A-90-19: IV-D-56) suggested that the variance procedure be similar to the Clean Water Act Fundamentally Different Factor (FDF) variance. The commenter (A-90-19: IV-D-56) attached two reports entitled, *"Development of Unit-Specific Predictive Emissions Equations for Chlorinated Hydrocarbons"*, and *"Using Unit-Specific Correlations to Improve Equipment Emissions Inventory Estimates"* which the commenter stated include data on variable removal efficiencies. The commenter also attached the executive summary of a report entitled, *"Supplemental FDF Information."*

Response: The two reports attached by the commenter (*"Development of Unit-Specific Predictive Emissions Equations for Chlorinated Hydrocarbons,"* and *"Using Unit-Specific Correlations to Improve Equipment Emissions Inventory Estimates"*) discuss the development of unit-specific equipment leak correlations and contain no data on wastewater or steam stripper removal efficiencies. Therefore, these reports do not support the allowance of a removal efficiency variance.

The executive summary submitted by the commenter contains a brief discussion regarding three steam strippers operated by the facility. The focus of the executive summary is that one of the steam strippers is unable to meet the chloroform discharge limits required by 40 CFR part 414 subpart J, which regulates the direct discharge of wastewaters from the OCPSF industry. The report does not present any data that demonstrate that the wastewater treatment requirements under §63.138 of the HON cannot be achieved by any of the three steam strippers. Specifically, the executive summary does not discuss the actual chloroform removal efficiencies of the steam strippers. Therefore, the executive summary does not support the allowance of a removal efficiency variance.

Comment: Two commenters (A-90-19: IV-F-1.2 and IV-F-4) (A-90-23: IV-D-4) stated that the proposed HON provided no evidence that the design steam stripper can achieve the target removal efficiency for strippability groups A, B, and C in table 9 of the proposed HON. Two commenters (A-90-19: IV-F-1.2 and IV-F-4; IV-D-58) stated that the EPA had selected a target removal efficiency for strippability groups B and C based on the most volatile compounds in each group, thereby overestimating strippability for most compounds. One commenter (A-90-19: IV-D-32) stated that the target removal efficiencies for group B and group C compounds should be consistent with the true strippability for each compound using steam stripping. The commenter (A-90-19: IV-D-32) stated that the chemical-specific strippability data found in table 33 of the proposed rule was inconsistent with the target removal efficiencies in table 9. The commenter (A-90-19: IV-D-32) contended that a full-scale steam stripper cannot achieve the strippabilities required in the proposed regulation for some group B and group C compounds. Several commenters (A-90-19: IV-D-73; IV-D-79; IV-F-1.2 and IV-F-4) (A-90-23: IV-D-4) concluded that compounds at the lower end of the range of volatility in these two groups cannot be removed at the efficiency required even using the design steam stripper.

As an alternative, several commenters (A-90-19: IV-F-1.2 and IV-F-4; IV-D-32) (A-90-23: IV-D-20) recommended determining target removal efficiencies for each compound individually or removing the low volatility compounds from the list. Several commenters (A-90-19: IV-D-55; IV-D-58; IV-D-77; IV-D-79) (A-90-23: IV-D-4; IV-D-18) expressed concern that the Fr factors for several HAP's (e.g., methanol, 2,4-dinitrotoluene, and MTBE) in table 33 are unachievable using the RCT and requested that the EPA provide public documentation that the given removal efficiencies are achievable. One commenter (A-90-23: IV-D-4) stated that the use of a simple Henry's law model is not adequate estimating target removal efficiencies for all HAP's.

One commenter (A-90-19: IV-D-32) suggested that the EPA use ASPEN simulations for at least 25 HAP's that fully represent the range of volatilities in strippability groups A, B, and C in order to establish the points for a more accurate regression analysis. The commenter (A-90-19: IV-D-32) suggested that a logit transformation of the strippability and the logarithm of the Henry's law coefficients for each of the simulated chemicals could be used to develop a regression equation for estimating Fr values as a function of Henry's law constants. The commenter (A-90-19: IV-D-32) provided data in appendix K of the comment letter recommending that the EPA use the Kremser equation to individually simulate the strippability for each regulated HAP.

One commenter (A-90-19: IV-D-73) stated that based on simulation models, many steam strippers that are different from the design steam stripper can achieve the same or greater removal efficiencies than the design steam stripper. The commenter (A-90-19: IV-D-73) claimed that the owners of these steam strippers are penalized because they would be subject to a performance test showing HAP removal efficiency.

Response: The EPA clarifies that the basis for the HAP target removal efficiencies achieved by the design steam stripper was documented at proposal, although this basis was not discussed in the proposal BID. For the proposed rule, steam stripper performance was documented in a memorandum titled *"Approach for Estimating Emission Reductions of Hazardous Air Pollutants from Wastewater Streams in the HON,"* (Docket No. A-90-23, Item II-B-5). For the final rule, steam stripper performance is documented in a memorandum titled *"Estimating Steam Stripper Performance and Size."* The EPA further clarifies that the Kremser equation was used to estimate both group target removal efficiencies for the proposed HON and individual HAP compound target removal efficiencies for the final regulation. At proposal, ASPEN was used to predict the removal efficiency (Fr) for five example organic compounds with Henry's law constants that spanned the possible range of Henry's law constants. The Fr values of the five compounds were plotted versus their Henry's law constants, and algorithms were used to develop the Fr values for the remaining HAP's (*"Approach for Estimating Emission Reductions of Hazardous Air Pollutants from Wastewater Streams in the HON,"* Docket No. A-90-19: Item II-B-5). For the final rule, each Fr value was individually calculated using the Kremser equation. The EPA is not familiar with the term "logit" transformation used by the commenter, and therefore, cannot respond to the suggestion for its use.

The EPA agrees that the target removal efficiencies for the HAP's regulated under the wastewater provisions of the HON rule should be consistent with the Fr value for each individual compound. Therefore, the final rule has been revised such that the treatment provisions, which were based on target removal efficiency groups in the proposed rule, are based on the individual compound target removal efficiencies in the final rule.

The basis is not clear for the statement made by one commenter that the use of a model based on Henry's law is not adequate for estimating HAP target removal efficiencies. The commenter cites a comparison between the methanol removal efficiency in the proposed HON (70 percent), the methanol removal efficiency predicted in an ASPEN simulation (13 percent) and the methanol removal efficiency measured in a 1992 EPA contract report (47 percent) [Treatment of Pharmaceutical Waste by Steam Stripping and Air Stripping, EPA Contract No. 68-CO-000, Risk Reduction Engineering Laboratory, Cincinnati, September 1992]. The revised steam stripper performance calculations performed by the EPA for the final HON indicate that the methanol target removal efficiency of the design steam stripper is 31 percent. This is less than the average 47 percent measured in actual stripping, as cited by the commenter. The ASPEN simulation cited by the commenter assumed the wastewater feed enters the steam stripper at 35 ^{o}C. The EPA analysis assumes the wastewater feed enters the steam stripper at 95 ^{o}C. This accounts for the difference between the EPA estimate of 31 percent and the ASPEN estimate cited by the commenter (13 percent). The EPA concludes that the Kremser equation, which uses the Henry's law constants, is adequate for estimating target removal efficiencies for individual compounds and that the target removal efficiencies in the final HON are achievable by the design steam stripper.

The EPA clarifies that owners or operators using steam strippers which differ from the design steam stripper as presented in §63.138(g) to comply with §63.138(b)(1), (c)(1), or (d) can either demonstrate compliance based on design evaluation that meets the requirements of §63.138(j)(1) or performance tests that meet the requirements specified in §63.145.

Comment: Several commenters (A-90-19: IV-D-75; IV-D-58) (A-90-23: IV-D-4) claimed that selecting a single target removal efficiency for a group of compounds makes it impossible to demonstrate equivalency using an alternate control option. One commenter (A-90-19: IV-D-110) stated that if the EPA relies on incorrect strippability estimates and target removal efficiencies, facilities that are attempting to demonstrate equivalency of alternate control technologies will be comparing their performance to levels of performance that cannot be reached by the proposed RCT. Two commenters (A-90-19: IV-D-32; IV-D-77) expressed concern that because facilities will be required to use the strippabilities in table 33 of the proposed rule to demonstrate equivalency of alternate control technologies to the designated RCT, the facilities will actually be comparing the performance of alternate systems to a level of performance that cannot be achieved by the EPA's design steam stripper. The commenters (A-90-19: IV-D-32; IV-D-77) contended that if the design steam stripper cannot achieve the strippability values in table 33 of the proposed rule, then alternate control technologies should not be compared to these values.

Response: The EPA has revised the Fr values based on revised Henry's law constants at 100 ^{o}C and a steam-to-feed ratio of 0.04 kg of steam per liter of wastewater. The revised Fr values were estimated using the Kremser equation for each of the HAP's regulated under the wastewater provisions of the final rule. The analyses conducted by the EPA demonstrated that the design steam stripper can achieve the target removal efficiencies. For the final rule, steam stripper performance is documented in a memorandum entitled *"Estimating Steam Stripper Performance and Size."*

Comment: Several commenters (A-90-19: IV-D-104; IV-D-108) (A-90-23: IV-D-1) stated that the target removal efficiencies in table 9 are inappropriately defined, because the strippability requirements do not account for multi-component streams or variable inlet concentration of HAP's. One commenter (A-90-23: IV-D-1) contended that owners will experience difficulty in achieving the current percent reductions for wastewater streams with low concentrations of HAP's. As an example, two commenters (A-90-23: IV-D-1; IV-D-4) cited data on the strippability of methanol from a study entitled, *"Treatment of Pharmaceutical Wastewater by Steam Stripping and Air Stripping,"* published in a September 1992 report by Radian Corporation subcontracted to Battelle Memorial Laboratories under U.S. EPA Contract No. 68-CO-0003. Another commenter (A-90-19: IV-D-32) stated that the results of this study demonstrate that oxygenated organic compounds are poorly steam stripped. One commenter (A-90-23: IV-D-1) stated that the study also presents variable strippabilities for other organic HAP's. Several commenters (A-90-19: IV-D-104; IV-D-108) (A-90-23: IV-D-1) claimed that the strippability requirements in proposed table 9 of §63.131 are overestimated and unobtainable in an operating facility with multi-component streams, because such streams exhibit variable strippabilities.

Response: The report referenced by the commenter does not substantiate the commenter's claim that the strippability requirements are overestimated, and that multicomponent streams will exhibit variable strippabilities.

The purpose of the report was to obtain sufficient data to establish numerical effluent limitations for the pharmaceutical industry for specific volatile organic compounds based on steam stripping, and for ammonia based on air stripping. In the report, three different wastewaters were studied. For each wastewater, the organic compound removal efficiencies of the steam stripper were determined at different steam-to-feed ratios. The report presents steam stripper removal efficiencies for five table 9 HAP's:

chloroform, methanol, MIBK, methylene chloride, and toluene. Other table 9 HAP's, if present in the wastewater, were reported as below the detection limit in the steam stripper influent and effluent, making it impossible to estimate the removal efficiency. The study results generally agree with EPA's revised estimates for the removal efficiencies for chloroform, MIBK, methylene chloride, and toluene.

The report indicates that the removal efficiency of methanol does show some variation. The report states that "the difficulty in accurately measuring the methanol concentrations in the feed and effluent streams is a likely contributing factor to the poor comparison between the computer simulation modeling results and experimental data." Difficulties with accurately measuring the methanol concentrations in the wastewater is indicated by data which show decreases in the methanol removal efficiency of the steam stripper as the steam-to-feed ratio increases. In reality, the methanol removal efficiency will increase as the steam-to-feed ratio increases. The report itself does not consider multicomponent interactions as a possible contributing factor to the variation in methanol removal variation. The EPA also notes that it is difficult to evaluate matrix effects and an infinite number of combinations exist which would require evaluation.

Comment: A commenter (A-90-23: IV-D-1) from a pharmaceutical company suggested that the outlet concentration resulting from treatment of wastewater should be used as a compliance option in lieu of target removal efficiencies. The commenter (A-90-23: IV-D-1) suggested that the outlet concentration of organic HAP's be established based on the inlet concentration instead of set at a single level with no regard to inlet concentration. The commenter (A-90-23: IV-D-1) claimed that facilities with wastewater streams having low concentrations would not be able to obtain the required percent reduction and proposed that the percent reduction requirement be replaced with a maximum steam stripper outlet concentration for each HAP.

Response: The commenter (A-90-19: IV-D-1) did not define what was meant by "low" concentration and did not provide any information showing that "low" concentration streams cannot achieve the required percent reduction. The definition of wastewater includes a threshold VOHAP concentration so that "low" concentration streams are not subject to the wastewater provisions of the HON. In order to be subject to the wastewater provisions of the HON, a wastewater stream must have a VOHAP concentration of at least 5 ppmw. Furthermore, there are VOHAP concentration thresholds associated with the control requirements for wastewater. For existing sources, the threshold VOHAP concentration for control is 1,000 ppmw and for new sources, the threshold VOHAP concentration for control is 10 ppmw. The EPA has calculated new compound-specific strippabilities which represent the target removal efficiencies for each compound. The EPA has determined, using the Kremser equation, that these removal efficiencies can be achieved in the design steam stripper for all Group 1 wastewater streams, regardless of their inlet concentration to the steam stripper. There are also other options that can be used to comply with the wastewater provisions in lieu of meeting the required percent reduction. For example, new sources can reduce the average VOHAP concentration of each HAP listed in table 8 of subpart G in the wastewater stream to below 10 ppmw.

Comment: One commenter (A-90-19: IV-D-73) agreed with the provisions in §63.138(c)(6)(i)(B) which allow determination of the VOHAP mass flow rate at the outlet of a treatment device that treats to less than reference control levels for purposes of determining the source-wide VOHAP mass flow rate for table 9 compounds. The commenter (A-90-19:

IV-D-73) also supports the provision in §63.138(c)(6)(i)(C) which excludes Group 1 wastewater streams that are treated to reference control levels from the total source VOHAP mass flow loading determination claiming that both of these provisions provide incentive for pollution prevention.

Response: The EPA appreciates this support and agrees with the commenter that these provisions provide incentives for pollution prevention. However, the EPA clarifies that any Group 1 wastewater that is treated to comply with §63.138(c)(6) must comply with all applicable requirements in §63.133 through §63.139 until the treated wastewater is discharged.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-78) (A-90-23: IV-D-20) contended that the EPA should establish in §63.139(b)(4) a concentration-based cutoff of 20 ppmw for noncombustion control devices as allowed in §63.139(b)(1)(ii) for combustion devices.

Response: The EPA continues to require non-combustion control devices (i.e., recovery devices), except flares, to reduce emissions by 95 percent. An outlet concentration of 20 ppmv is allowed for combustion devices as an alternative to achieving a 95-percent removal efficiency, because 20 ppmv is the lower concentration limit for which combustion devices can achieve their removal efficiencies. Recovery devices do not have limits on their removal efficiencies at concentrations of 20 ppmv. Flares do not have percent reduction or concentration requirements, but must meet the requirements in 40 CFR 63.11(b).

5.2 MAINTENANCE WASTEWATER

Comment: One commenter (A-90-19: IV-D-32) stated that the proposed start-up, shutdown, and malfunction plan requirements for routine maintenance wastewaters will be part of a plant's air permit, which will ensure proper management of the wastewater. Two commenters (A-90-19: IV-D-32)

(A-90-23: IV-D-20) requested that the EPA omit the last sentence in §63.102(b)(1)(ii) and therefore allow each plant more flexibility in selecting a site-specific wastewater management option for control of routine maintenance wastewaters.

Response: The proposed requirements for maintenance-turnaround wastewater are addressed in the facility's start-up, shutdown, and malfunction plan. This plan must ensure that maintenance-turnaround wastewaters are properly managed and that organic HAP emissions released from these wastewaters are controlled. If a facility's air permit specifies the proper management of maintenance-turnaround wastewater, then the permit can be submitted as part of the facility's start-up, shutdown, and malfunction plan.

The EPA is changing the requirements for routine maintenance wastewater as proposed in §63.102(b). Routine maintenance wastewater will not be subject to the proposed requirements in §63.102(b)(1)(ii) but will be subject to the same requirements as listed for maintenance-turnaround wastewater in §63.102(b)(1)(i) of the proposed rule. In the final rule, provisions for maintenance wastewater are in §63.105.

Comment: One commenter (A-90-23: IV-D-17) was unsure whether or not the control of routine maintenance emissions requires that all process equipment be drained and purged of all process fluids before opening. The commenter (A-90-23: IV-D-17) claimed that the fugitive emissions caused by purging a vessel before maintenance are greater than the emissions from the vessel during maintenance if it was not purged. The commenter (A-90-23: IV-D-17) claimed that the added equipment used to purge a vessel is in continuous service, whereas maintenance procedures are periodic. The commenter (A-90-23: IV-D-17) asserted that the EPA has not accurately assessed the emissions from purging and provided data which compares emissions from maintenance activities and equipment leaks from purging. One commenter (A-90-23: IV-D-17) stated that data provided in their comment letter indicate that the cost of controlling emissions from maintenance wastewater under the Benzene Waste NESHAP is $140,000/ton. The commenter (A-90-23: IV-D-17) contended that the fugitive emissions from the purge and block valves, which were added as part of the emission control equipment, actually exceeded the emissions that required control under the Benzene Waste NESHAP. Therefore, the commenter (A-90-23: IV-D-17) concluded that no net emission reductions were achieved.

Response: It is assumed that the commenter (A-90-23: IV-D-17) may have misinterpreted the provisions in §63.102(b)(1)(ii) of the proposed rule which require that an owner or operator provide a description of the procedures used when emptying and purging equipment during periods not associated with a process unit shutdown. The provisions do not require that all process equipment be drained and purged of process fluids before opening. Rather, the provisions require that wastewater generated during emptying and purging be properly managed if a piece of process equipment needs to be drained and purged in order for maintenance activities to be performed. The provisions do not require the installation of any additional equipment (i.e., purge and block valves) for purging equipment during routine maintenance procedures.

The requirements in §63.102(b)(1)(ii) in the proposed regulation for routine maintenance wastewaters have been revised. Routine maintenance wastewaters no longer have to be collected and recycled, destroyed, or collected and managed in a controlled drain system. They are now subject to the proposed requirements for maintenance-turnaround wastewaters. These requirements are not control requirements but are general "good housekeeping" requirements.

The commenter's (A-90-23: IV-D-17) estimate of emissions from purge and block valves assumes that these valves are in operation continuously. The EPA has determined that the commenter (A-90-23: IV-D-17) overestimated the emissions from purge and block valves, because these valves are only in service during maintenance activities. Purge and block valves are used to drain all process fluids before opening equipment in order to perform maintenance activities.

5.3 MANAGEMENT OF RESIDUALS

Comment: One commenter (A-90-23: IV-D-21) suggested that wastewater residuals should not be regulated by the HON, but rather in a separate MACT standard. The commenter (A-90-23: IV-D-21) questioned why wastewater residuals are regulated by the HON while process residuals are not.

Response: The EPA is not regulating wastewater residuals under a separate MACT standard as suggested by the commenter because no benefit would be gained by separating the organics from the wastewater if the organic residuals are not treated. The Act requires that MACT standards be developed for source categories. The HON is the MACT standard for the SOCMI source category. The SOCMI source comprises several emission points including wastewater collection and treatment systems. Because wastewater residuals may be generated as a result of compliance with the wastewater provisions of the HON, such residuals are regulated by §63.138(h) as part of HON.

The EPA assumes that the term "process residuals" means wastes that are generated at a SOCMI facility but not as a result of complying with the HON. Residuals that are not generated as a result of implementing the HON are not regulated by the HON. Other wastes generated at SOCMI facilities may be addressed by regulations such as RCRA.

Comment: One commenter (A-90-19: IV-D-73) suggested changing the requirement to destroy 99 percent of the total HAP mass in residuals to 99 percent of the total VOHAP mass.

Response: The EPA has not made the change suggested by the commenter in the final regulation because it would involve an incorrect use of the term "VOHAP". However, the EPA has clarified that the requirement to treat the residual to destroy the total combined HAP mass flow rate by 99 percent or more is determined by the procedures specified in §63.145(c) or (d). The requirement applies only to those HAP's listed in tables 8 and 9 of the final regulation. Refer to section 2.0 of this BID volume for discussion on the correct use of the term "VOHAP concentration."

Comment: One commenter (A-90-19: IV-D-64) expressed concern that the requirements in §63.138 for 99 percent reduction in a treatment process and for 99 percent destruction of each residual could be extended to conventional control technologies, such as flares, incinerators, process heaters, and condensers. The commenter (A-90-19: IV-D-64) stated that those devices do not always achieve 99 percent removal or destruction, yet would be considered satisfactory control devices for closed-vent systems as regulated in §63.139. The commenter (A-90-19: IV-D-64) requested that the EPA either clarify the definitions of "residual" and "treatment process" so that such control devices could not be considered treatment processes or lower the 99 percent destruction requirement to 95 percent. The commenter (A-90-19: IV-D-64) stated that part of the problem is the use of a waste incinerator example in the definition of "treatment process." The commenter (A-90-19: IV-D-64) stated that the EPA seems to indicate that treatment processes apply to liquids and control technologies apply to gases. The commenter (A-90-19: IV-D-64) requested that the EPA distinguish the differences.

Response: In the final rule, the EPA continues to allow (1) several options for controlling HAP emissions from wastewater in §§63.138(b), (c), (d), and (e) of subpart G, which includes the requirement for a 99 percent reduction of HAP emissions; and (2) three options for controlling HAP emissions from residuals in §63.138(h), one of which requires the treatment of residuals to destroy the total combined HAP mass flow rate by at least 99 percent. The commenter seems confused about the relationship between the control requirements for treatment processes, which are by definition used to comply with §63.138, and control devices which are used to comply with §63.139. Combustion devices which are used in conjunction with waste management units must achieve either a 95 percent reduction in the total organic compound emissions or an outlet total organic concentration of 20 ppmv. Any other control device used in conjunction with waste management units must achieve a 95-percent reduction in the total organic compound emissions. The EPA clarifies that both treatment processes used to comply with §63.138 and control devices used to comply with §63.139 may be used to treat both liquids and gases. The HON does not specify that certain technologies must be used to treat specific materials.

Comment: One commenter (A-90-19: IV-D-54) contended that §63.138(e)(1), which states that recycled wastewater streams or residuals "shall not be exposed to the atmosphere," is overly broad and unnecessary. The commenter (A-90-19: IV-D-54) stated that this requirement is unnecessary because §63.138(e)(2) requires these streams to comply with §63.133 through §63.137. The commenter (A-90-19: IV-D-54) requested that the intent of §63.138(e)(1) either be clarified or the paragraph be deleted.

Response: The provisions in §63.138(f)(1) of the final rule [which was §63.138(e)(1) in the proposed rule] are intentionally broad because the manner in which recycling of wastewater streams or residuals is conducted may vary considerably from facility to facility and may not involve management in waste management units, including those regulated under §63.133 through §63.137. The inclusion of the phrase "shall not be exposed to the atmosphere" is intended to provide for suppression and control of management units other than those regulated by §63.133 through §63.137.

Comment: One commenter (A-90-19: IV-D-78) recommended that facilities be allowed to treat the overheads from a design steam stripper as a process vent and apply the associated RCT (or otherwise achieve 98 percent HAP reduction) instead of being required to install a condenser.

Response: The requirement to install a condenser as part of the design steam stripper provisions in §63.138(g) has been removed from the final regulation. The EPA clarifies that each treatment process or waste management unit that receives, manages, or treats a Group 1 wastewater stream or residual removed from a Group 1 wastewater stream must comply with §63.138(i)(3)(i) through (i)(3)(iv) of the final rule. The emissions from the primary condenser on the steam stripper overheads must be routed to a control device designed and operated in accordance with §63.139.

5.4 AVAILABILITY OF SERVICE FIRMS

Comment: One commenter (A-90-23: IV-D-28) expressed concern regarding the lack of discussion in the HON of the services that commercial firms can provide to help SOCMI facilities comply with the HON. The commenter (A-90-23: IV-D-28) claimed that commercial firms can collect and treat wastewaters on or offsite and treat newly generated and historical wastes. The commenter (A-90-19: IV-D-28) was unsure of the control, monitoring, recordkeeping, and reporting requirements that would apply to onsite or offsite commercial firms which manage SOCMI wastewaters. The commenter (A-90-23: IV-D-28) suggested clarifying the requirements for commercial firms in the preamble to prevent rule violations.

Response: The EPA clarifies that the HON does not apply to service firms. If a SOCMI plant owner or operator elects to contract with a commercial firm, the SOCMI plant owner or operator is still responsible for ensuring that any Group 1 wastewater sent offsite for treatment is managed in accordance with the HON.

5.5 BIOLOGICAL TREATMENT

Comment: One commenter (A-90-19: IV-D-32) stated that the EPA's mathematical formulation for biological degradation in the WATER7 model and similar calculations in other acceptable simulation models correctly assume that sorption of HAP's to the biological solids is a negligible removal pathway. The commenter (A-90-19: IV-D-32) provided chemical-specific sorption data substantiating this statement.

However, another commenter (A-90-19: IV-D-85) stated that the EPA should account for VOC sorption onto sludge, which may cause air emissions during disposal of the sludge.

Response: The EPA agrees that sorption of VOC's onto sludge generated by biological treatment units is negligible. Therefore, VOC emissions resulting from the disposal of sludge generated by biological treatment units is insignificant. However, VOC contained in sludges generated by other sources, such as API separator's, where no biodegradation occurs, may be significant. Such sludges are defined as residuals in the rule, and must be treated to destroy 99 percent of the organic HAP content in the sludge. Therefore, emissions of HAP's from sludges are subject to the control requirements of the HON.

5.6 PROCESS UNIT ALTERNATIVE

Comment: One commenter (A-90-23: IV-D-2) claimed that the 10 ppm concentration threshold specified by the process unit alternative in §63.138(d) should be replaced by a vapor pressure threshold. The commenter (A-90-23: IV-D-2) indicated that streams with concentrations as low as 10 ppm would have very low emissions.

Response: The EPA disagrees with the commenter's suggestion to use a vapor pressure threshold instead of the 10 ppmw threshold in the process unit alternative of §63.138(d). The EPA established the process unit alternative control option to provide greater flexibility to facilities for complying with the HON. Also, if an owner or operator chooses to comply with the HON using this option, a Group 1/Group 2 determination is not necessary because all wastewater streams from the process unit are controlled. Changing the alternative control option to be based on a vapor pressure rather than a concentration is not consistent with the other compliance thresholds that are established in the rule. To comply with the process unit alternative, the EPA therefore continues to require the owner or operator to achieve a total VOHAP average concentration of 10 ppmw for each process wastewater stream exiting a process unit.

6.0 COMPLIANCE DEMONSTRATIONS

6.1 BIOLOGICAL TREATMENT

Comment: One commenter (A-90-23: IV-D-20) indicated that proposed §63.145(i)(1), which discusses the procedure for determining compliance, does not address the situation where a biological treatment system is used in conjunction with other treatment systems or when a biological treatment system is used but is vented to a control device. The commenter (A-90-23: IV-D-20) stated that such treatment options are currently in use at some SOCMI facilities and should therefore be addressed in the rule.

Response: Situations where a biological treatment system is used in conjunction with other treatment technologies are covered by §63.145. If the biological treatment unit meets the required mass removal provisions of §63.138(b)(1)(iii)(C), (c)(1)(iii)(D), or (e), then the owner or operator must demonstrate compliance by the corresponding procedures in §63.145.

A biological treatment unit which meets the required mass removal provisions is not required to be covered and vented to a control device.

In the example cited by the commenter, the biological treatment unit is vented to a control device. Therefore, the owner or operator must demonstrate compliance by the procedures in §63.145(f) and (h)(1), for wastewater streams which are Group 1 for table 8 HAP's, or by the procedures in §63.145(g) and (h)(1) for wastewater streams which are Group 1 for table 9 HAP's. These procedures may be used to demonstrate compliance with the required mass removal provisions for treatment devices other than biological treatment units. It should also be noted that the control device to which the biological treatment unit is vented must be in compliance with §63.139.

Comment: One commenter (A-90-19: IV-D-85) stated that the EPA should either delete the equations in §63.145(i)(2), which allows for the use of biological treatment in lieu of steam stripping, or make sure that the equation cannot lead to increased emissions. The commenter (A-90-19: IV-D-85) suggested that if the equations remain available for use, the EPA should further evaluate them in terms of likely performance with complex mixed streams. The commenter (A-90-19: IV-D-85) suggested that the equations should not be available for conditions that the EPA is unable to validate.

The commenter (A-90-19: IV-D-85) objected to the use of total HAP's as the single parameter governing the equation and stated that all high-risk pollutants should be considered. The commenter (A-90-19: IV-D-85) argued that no SOCMI facility should be able to use the equation to demonstrate compliance unless the wastewater treatment system is completely covered up to the biological treatment system.

Response: The equation referred to by the commenter appears at §63.145(i)(2) of the proposed rule, and at §63.145(h)(2) of the final rule. The equation cannot lead to HAP emission reductions less than those achieved by steam stripping because the equation is used to demonstrate that HAP emission reductions achieved are equivalent to or greater than those achieved by steam stripping, as provided for in the provisions stated in §63.145(h)(2). Additionally, the rule requires that all Group 1 wastewater streams be covered up until all treatment requirements in §63.138 are achieved.

The commenter is correct that the equation at §63.145(h)(2) estimates the total HAP emission reduction, and not the HAP emission reduction of individual HAP's. Section 112(d) of the CAA requires the EPA to develop technology-based standards which obtain the maximum reduction in HAP emissions. The CAA does not require individual speciation of each HAP and the cost of such a demonstration and the additional monitoring, reporting, and recordkeeping requirements are not warranted.

The EPA clarifies that the equation in §63.145(h)(2) can account for multi-component interactions. For example, the use of WATER7 with site-specific biokinetic parameters determined by the procedures in appendix C of part 63 will account for multi-component interactions.

6.1.1 Method 304

Comment: One commenter (A-90-19: IV-D-32) stated that the regulation should allow the use of biodegradation kinetic coefficients predicted from respirometric studies (i.e., UNIFAC fragment approach) and chemical structure in the biological treatment unit simulation models. Two commenters (A-90-19: IV-D-32), (A-90-23: IV-D-20) contended that the EPA should allow kinetic constants predicted by this methodology to be substituted for the default constants in WATER7, or to be used in other acceptable biological treatment simulation models to predict the relative fractions of volatilization and biodegradation in full-scale treatment systems for the purpose of demonstrating equivalency to the RCT.

Response: The EPA has revised the final rule to provide more flexibility in determining site-specific biodegradation constants, and has included these provisions in appendix C of part 63. These provisions allow facilities to perform site-specific testing as an alternative to Method 304A or 304B.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-34; IV-D-75) (A-90-23: IV-D-20) recommended that plants should be allowed to use procedures other than Method 304 and

WATER7, which are still under development, for determining biodegradation kinetics and demonstrating that biological treatment provides effective control of HAP's. Two commenters (A-90-19: IV-D-32; IV-D-75) proposed that a table of acceptable procedures be included in the rule and that a separate document describing these procedures be published. Two commenters (A-90-19: IV-D-32; IV-D-75) claimed that there are better methods than Method 304 to predict biodegradation kinetics for WATER7. The commenters (A-90-19: IV-D-32; IV-D-75) stated that the inclusion of Method 304 and WATER7 in the regulation will discourage efforts to develop more reliable and less labor-intensive methods.

One commenter (A-90-19: IV-D-32) recommended the use of an alternative, direct method for determining the fraction of a HAP that is biodegraded and the fraction that is emitted to the air on a site-specific basis. One commenter (A-90-19: IV-D-34) stated that Method 304 should be deleted as a required test method to demonstrate biodegradation, and alternate test methods recommended by the CMA should be included.

One commenter (A-90-19: IV-D-75) claimed that neither Method 304 nor any other method should be required for biological treatment, because a biological treatment unit that is operated within the ranges of certain parameters has stable removal efficiency. The commenter (A-90-19: IV-D-75) stated that these parameters are sufficient for demonstrating compliance and achieving efficient removal of HAP's.

Response: The EPA is allowing two other options in addition to Methods 304A and 304B for demonstrating effective treatment with biological systems. These are outlined in appendix C of part 63, "Determination of Fraction Biodegraded (Fbio) in a Biological Treatment Unit." When an option to determine Fbio requires a model to be used, BASTE and TOXCHEM will be allowed, as well as WATER7. The options in appendix C are discussed more fully in section 4.3 of BID volume 2E.

Operating parameters are sufficient to show compliance once Fbio is determined (i.e., once the mass removal is determined to be based on biodegradation rather than volatilization). However, the EPA disagrees with the commenter's assertion that monitoring alone is sufficient for demonstrating compliance for biological systems. The EPA emphasizes that after the owner or operator demonstrates that compliance is achieved through biodegradation not volatilization, the operating parameters, which are based on operating conditions during the performance test, are adequate to show compliance.

The EPA is considering the commenter's suggestion to write a guidance document as a companion to appendix C of part 63.

Comment: One commenter (A-90-19: IV-D-32) stated that the regulation should be clarified to state that for new treatment systems, an engineering estimate of the design hydraulic retention time should be used in Method 304 when the full-scale system is not in operation.

Response: The EPA clarifies that the hydraulic retention time used for new systems not yet in operation must be the same as the hydraulic retention time of the system as it will be operated.

6.1.2 Compliance Issues

Comment: One commenter (A-90-19: IV-D-97) recommended that the EPA simplify compliance demonstrations for biological treatment units so that both large and small SOCMI facilities can continue to use their existing biological treatment units.

Response: The commenter did not discuss which aspects of compliance demonstration for biological units should be simplified or how the compliance demonstration requirements should be revised. The proposed and final wastewater provisions allow SOCMI facilities to use existing biological units for treating Group 1 process wastewater streams, provided that the level of treatment achieved is equivalent to the reference control technology.

Comment: One commenter (A-90-19: IV-D-85) stated that since the efficiency of biological treatment units is based on many variables, the EPA should require a high degree of proof from industry to show that a biological treatment unit can achieve an equivalent level of treatment as the level achieved by the design steam stripper.

Response: The EPA believes the final rule does require a high degree of proof from industry to show that a biological treatment unit can achieve a level of treatment equivalent to the RCT. The rule requires that the actual HAP mass removal achieved by the biological treatment unit as determined by the procedures in §63.145(h)(2) is equal to or exceeds the required mass removal as determined by the procedures in §63.145(f) for new sources or §63.145(g) for new and existing sources. The required mass removal is the mass removal that would be achieved by the RCT. Alternatively, the owner or operator can demonstrate the biological treatment unit is achieving 95 percent HAP mass reduction by the procedures in §63.145(i). Additionally, the owner or operator must select parameters to be monitored which will insure that the biological treatment unit will remain in compliance.

6.2 MONOD EQUATION AND ALTERNATIVE KINETICS FORMULAS

Comment: One commenter (A-90-19: IV-D-32) supported the EPA's selection of the Monod equation to simulate biodegradation kinetics in the WATER7 model. Three commenters (A-90-19: IV-D-32; IV-D-34; IV-D-75) requested that simulation models such as PAVE, TOXCHEM, BASTE, and CINCI be acceptable methods for demonstrating that an enhanced biological treatment system complies with the HON.

Response: The EPA agrees that alternative kinetics formulations can be used to simulate biodegradation kinetics when such a formulation is found to provide reasonable site-specific emission estimates. The EPA has added appendix C to 40 CFR part 63 to provide detailed guidance for demonstrating compliance with the provisions for biological treatment in the final regulation.

The EPA has not included the PAVE model in appendix C. The Henry's law value is an important input parameter for estimating emissions from wastewater. The PAVE model does not allow for the input of the Henry's law constant, and it is unclear if or how the PAVE model estimates this parameter. In addition, PAVE is designed to evaluate one chemical at a time and it calculates the biomass as an output. Models used in appendix C need to be able to evaluate multicomponent streams, and input the biomass for the system.

6.3 PERFORMANCE TESTING

Comment: One commenter (A-90-19: IV-D-85) stated that the proposed HON may not provide a reliable basis for evaluating the equivalence of biological treatment units. The commenter (A-90-19: IV-D-85) stated that the models used for demonstrating compliance of biological treatment units in the proposed HON are based on the Monod equation, which may not be an appropriate basis for evaluating biodegradation of toxic streams. The commenter (A-90-19: IV-D-85) referenced an article authored by Clay, S.G., Boud, Jr., A.F.; Rozich, A.F.; Moran, N.R., titled "Using Respirometry to Assess Waste Streams and Set Surcharges." Water Environment and Technology. June 1992, pages 60-65, which indicated that the Monod equation may be an unreliable predictor of the rate of biodegradation.

Response: The article cited by the commenter suggests that the Monod equation will not accurately predict the specific growth rate of biomass when inhibitory substrates are present. Biomass growth rate inhibition may occur when the biomass is exposed to unexpectedly high concentrations of organic compounds or organic compounds to which the biomass is not climatized. The article referenced by the commenter suggests that the Haldane equation can be used to predict the specific growth rate of biomass when inhibitory substrates are present.

Facilities in the SOCMI will operate their biological treatment units in a manner consistent with wastewater discharge permit requirements and will avoid upset conditions. Upset conditions, if they occurred, could contribute to inhibition of the biomass growth rate, resulting in violations of permitted discharge limits. Inhibition of the biomass growth rate is not expected to occur except upon infrequent abnormal operations.

Also, the owner or operator of a biological treatment unit used to comply with the HON must use the procedures specified in appendix C of part 63 to ensure compliance with the HAP emission control requirements in §63.138 of subpart G.

Comment: One commenter (A-90-19: IV-D-85) stated that proposed §63.145(a)(1), which requires performance tests for demonstrating compliance with the wastewater treatment provisions of §63.138 in the proposed regulation, is inadequate because plant operators are not required to conduct performance tests to estimate future credits and debits.

The commenter (A-90-19: IV-D-85) disagreed with the use of either "process knowledge" or "records" of the mass concentrations and flow rates to estimate emissions debits and credits because this approach allows plant operators to pick and choose the method which suits them best, rather than requiring operators to choose the most accurate technique or to verify the accuracy of a record.

Another commenter (A-90-19: IV-D-45 and IV-F-7.7) opposed the use of engineering calculations instead of requiring initial performance testing for determining wastewater treatment plant compliance with the provisions of §63.138.

Response: In allowing the use of process knowledge the EPA took into consideration that different methods for determining debits and credits for emissions averaging or for demonstrating compliance with §63.138 have different uncertainties associated with them in terms of accuracy. The EPA also took into consideration that, for some facilities, sampling and testing may be impractical, unsafe, or too costly. In some cases, the availability of wastewater flow measurement data, analytical data, or design data may make sampling and testing unnecessary for all wastewater streams. Therefore, the EPA has provided facilities the option of using process knowledge and records for purposes of determining credits and debits for emissions averaging and for demonstrating compliance with §63.138.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-77) recommended that the EPA clarify in proposed §63.138(f) that performance testing is not required for a design steam stripper.

Response: There is no language in the proposed or final rules to suggest that performance testing is required to demonstrate compliance with the design steam stripper provisions [§63.138(f) in the proposed rule and §63.138(g) in the final rule]. Therefore, the EPA maintains that clarification is not necessary.

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) asserted that design steam strippers should be subject to at least one performance test to establish control efficiency and design parameters to be monitored. The commenters (A-90-19: IV-D-70; IV-D-99) claimed that average parameter values should be determined hourly and should be based on data gathered every 15 minutes.

Response: The EPA's analysis shows that the design steam stripper will achieve the required treatment efficiencies required in the final rule. Therefore, performance tests are not required. The EPA clarifies the rule provides for monitoring of design parameters, including wastewater feed temperature, steam flow rate, and wastewater feed rate.

Comment: One commenter (A-90-19: IV-D-64) supported the acceptance of design analyses and documentation in proposed §63.138(i)(1) as an alternative to performance tests.

Response: The EPA clarifies that the acceptance of design analyses and documentation in 63.138(j)(1) of the final rule as an alternative to demonstrating compliance through testing applies only to 63.138(b)(1),(c)(1) and (d). If a biological treatment unit is used to comply with the HON, an owner or operator must follow the procedures in appendix C of part 63 to ensure compliance. The EPA does not intend for design analysis to be used for biological treatment units.

6.4 METHODS 25D AND 305

Comment: One commenter (A-90-19: IV-D-50) was concerned with the applicability of Method 25D and Method 305 because validation studies have not been released. The commenter (A-90-19: IV-D-50) specifically expressed concern with the detection abilities of these two methods in a wastewater containing VOC's other than HAP's, and the availability of labs to run the analysis.

Response: The draft validation study for Method 25D is available and is titled *"Method 25D Recovery Factors,"* contract no. 68D90055, October 1991.

Comment: One commenter (A-90-19: IV-D-77) stated that the EPA should clarify that Method 305 is limited to testing for table 9 HAP's. The commenter (A-90-19: IV-D-77) also stated that the EPA needs to clarify §63.144(b), which provides options on how to determine whether HAP's are present, because Method 305 seems to test for more than just table 9 HAP's.

Response: In order to determine if a wastewater stream is subject to the wastewater provisions of the HON, the annual average flow rate, and the annual average VOHAP concentration must be determined. There are three options for measuring VOHAP concentrations.

The first option is to directly measure the VOHAP concentration of each individual hazardous air pollutant (HAP) in the wastewater using Method 305. The total VOHAP concentration is the sum of the individual compound VOHAP concentrations.

A second option is to use Method 25D and the total volatile organic (VO) concentration as a surrogate for VOHAP concentration. Method 25D does not provide speciation, and will measure both HAP and non-HAP compounds. The result is a single concentration which represents the total volatile organic concentration in the wastewater. Under this option, there is no speciation and it is assumed that the VO concentration equals the VOHAP concentration. Therefore, this option makes the most sense for wastewater streams containing only HAP's regulated under subpart G, or when the ratio of non-HAP's to HAP's is low.

The third option is to use a method other than Method 305 which measures individual organic HAP concentrations in the wastewater. The individual concentrations, however, can be corrected to their concentrations as if they had been measured by Method 305, by multiplying each concentration by the compound-specific fraction measured (Fm) values in table 34 of subpart G.

The applicability of Method 305 is not limited to testing for table 9 HAP's. Method 305 will detect organic compounds other than those specified in table 9 of subpart G. However, Method 305 will speciate, so that compounds listed on table 9 of subpart G can be identified. Only table 9 HAP's are subject to regulation under the wastewater provisions of the HON.

6.5 TESTING AT PEAK LEVELS FOR COMPLIANCE DEMONSTRATION

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-110; IV-D-112) stated that the requirement in §63.145(a)(1) to test for compliance in treatment processes and waste management units when flow rates and VOHAP concentrations are at peak levels is technically infeasible and does not represent annual average conditions. One commenter (A-90-19: IV-D-112) suggested that compliance testing be performed when the SOCMI process is operating at the production rate or annual average flow rate determined pursuant to §63.144. One commenter (A-90-23: IV-D-20) indicated that if some facility processes only operated at a particular time of the year and others were only run at peak production capacity once every 2 years, conducting a compliance test on peak VOHAP concentration generation levels could be very difficult. The commenter (A-90-23: IV-D-20) suggested that if the most difficult compliance conditions are not reasonably available for performance testing, then the most difficult available conditions should be used.

Response: The EPA continues to maintain the same regulatory language in §63.145(a)(1), but clarifies that an owner or operator may use the most difficult available conditions and provide rationale through extrapolation for how compliance with the HON shall be achieved under the most difficult conditions.

6.6 USE OF MODELS TO SHOW COMPLIANCE FOR ALTERNATIVE CONTROL TECHNOLOGY

Comment: One commenter (A-90-19: IV-D-75) supported the use of models to determine whether an alternative control technology meets the RCT treatment requirements. The commenter (A-90-19: IV-D-75) claimed that the models are reliable when used with appropriate physical property information and that models were used to establish RCT performance and as a basis for EPA's economic evaluation. Several commenters (A-90-19: IV-D-32; IV-D-108) (A-90-23: IV-D-20) argued that facilities should be allowed to use ASPEN simulations to demonstrate the equivalency of alternative steam stripper designs with the RCT, since the EPA has based their design on ASPEN simulations. One commenter (A-90-19: IV-D-32) provided data in appendix N of the comment letter which contains examples of simulation model results. One commenter (A-90-19: IV-D-64) encouraged the EPA to streamline the process for approving alternative stripper designs under §63.143(d). One commenter (A-90-19: IV-D-75) said that the requirements for performance testing and monitoring are an unnecessary expense.

One commenter (A-90-19: IV-D-73) claimed that simulation models adequately determine HAP removal efficiency of steam strippers and also identify the critical parameters for monitoring, recordkeeping, and reporting.

Response: It is unclear what one commenter (A-90-19: IV-D-75) means by "alternate control technology". The EPA clarifies that any control technology can be used as a treatment device to meet the provisions of §63.138 if the technology achieves HAP emission reductions equivalent to the wastewater RCT. The demonstration of compliance can be made by a design analysis and supporting documentation as provided in §63.138(j)(1) or by conducting performance tests using the test methods and procedures in §63.145 as referenced by §63.138(j)(2).

Table 12 of the final rule provides for monitoring of alternative parameters for treatment processes. The request to the implementing agency for monitoring alternative parameters must include a description of the methods used to monitor. These methods may include the use of simulation models.

6.7 AVAILABILITY OF COMBUSTION TECHNOLOGIES

Comment: One commenter (A-90-19: IV-D-107) stated that several combustion or recovery technologies are available for use in meeting the requirements of the rule and each should be allowed to compete in the market place.

Response: The EPA clarifies that any control technology can be used to comply with the rule if the technology achieves HAP emission reductions equivalent to the RCT and meets the requirements for control devices specified in the rule.

6.8 USE OF EPA-APPROVED METHODS

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-53; IV-D-79) asserted that methods previously approved by the EPA should not need to be validated using Method 301. One commenter (A-90-19: IV-D-33) stated that in addition to the analytical methods listed in §63.143(b) for the parameters that must be monitored, the HON should allow a facility to use any relevant method approved by the EPA for compliance with CWA requirements, and the facility should not be required to validate the method because the EPA will have already determined the method to be valid. One commenter (A-90-19: IV-D-32) included a preliminary list of EPA-validated methods, which industry currently uses when conducting performance tests. One commenter (A-90-19: IV-D-53) recommended that the EPA include a list of methods which do not have to be validated using Method 301. The commenter (A-90-19: IV-D-53) said that the list should at least include Methods 8020, 8021, 8240, 8260, 602, and 604. One commenter (A-90-19: IV-D-33) suggested language to amend §66.144(b)(3)(iii)(B). One commenter (A-90-19: IV-D-32) asserted that alternate testing and analytical procedures on which the CMA has commented should not require validation and approval by the EPA before they are used. The commenter (A-90-19: IV-D-32) stated that these methods, which the CMA has deemed equivalent or more appropriate than the proposed procedures, be cited as acceptable alternatives for monitoring for each situation and process to which they are applicable.

Response: The methods that the commenter suggested are OSW (SW-846) and OW methods. These methods were developed for different types of source categories for small subsets of compounds which are on the HON target list. Both those offices have less stringent acceptance criteria for when percent recovery is acceptable. For example, OSW methods allow 50 to 150 percent recovery of target compounds as acceptable, while Method 301 allows 70 to 130 percent recovery and a correction procedure. An owner or operator would have to validate the method, using Method 301, as if no other valid method existed. They validate the method as measuring the target compound in the water, then correct with the Fm factor. Therefore, no PEG sampling is required. The final rule continues to allow an owner or operator to use any method as long as it is verified by Method 301. In the proposal, the EPA requested evaluation data on other methods and did not receive any. Therefore, the EPA continues to require Method 301 for validation.

6.9 MONITORING REQUIREMENTS FOR RECYCLED STREAMS

Comment: One commenter (A-90-19: IV-D-54) stated that the monitoring requirements in proposed §63.143 in table 11 do not seem appropriate for wastewater streams that are recycled. The commenter (A-90-19: IV-D-54) stated that recycle streams should not be subject to the monitoring requirements in §63.143(b) and table 11 because the information that is obtained would not serve any useful regulatory purpose. One commenter (A-90-19: IV-D-32) stated that wastewaters that are recycled wholly within a SOCMI process, and which are not exposed to the atmosphere, represent no potential to emit and should not be subject to wastewater monitoring requirements.

Response: The EPA clarifies the monitoring requirements in table 11 of the proposed rule (table 12 of the final rule) did not apply to recycled streams. The monitoring requirements for waste management units in table 11 of the final rule do apply to recycled streams.

The treatment requirements in §63.138 allow an owner or operator to comply by either using one of the specified treatment processes for wastewater and residuals or by recycling the wastewater or residuals to the process. The provisions for recycled streams state that: (1) the wastewater stream or residual must not be exposed to the atmosphere; and (2) each waste management unit that treats the recycled residual or recycled wastewater, prior to or during recycle, must meet the requirements of §63.133 through 63.137 of subpart G. Sections 63.133 through 63.137 contain the inspection and monitoring requirements for waste management units. These requirements are listed in table 11 in the final rule.

6.10 VENDORS

Comment: One vendor (A-90-19: IV-D-8) provided information to the EPA on a leak detection device to be used instead of Method 21 for compliance with the inspection provisions for collection and treatment systems.

Response: The EPA has provided a discussion on this alternate leak detection device in section 5.0 of BID Volume 2A.

6.11 INSPECTIONS

Comment: One commenter (A-90-19: IV-D-73) supported the storage vessel floating roof inspection provisions for wastewater tanks that meet the Group 1 wastewater tank criteria in §63.133(c) and (d). The commenter (A-90-19: IV-D-73) stated that the semi-annual inspection requirement for wastewater tanks is excessive and should be replaced with the requirement for storage tank floating roof inspections.

The commenter (A-90-19: IV-D-73) recommended deleting §63.133(f).

Response: The EPA has corrected an error in proposed §63.133(f) to clarify the original intent of the regulation. In the final rule, the EPA intends for improper work practices associated with wastewater tanks and for one type of control equipment failure in §63.133(g)(1)(ix) (i.e., cracked, gapped, or broken gaskets, joints, lids, covers, or doors) to be visually inspected initially and semi-annually thereafter. Regarding the inspection provisions for the remainder of the control equipment failures for wastewater tanks, the EPA has corrected the wording of the provisions in §63.133(f) to refer owners and operators to the inspection schedule for storage vessel floating roofs. The final rule no longer requires semi-annual inspections for such failures.

Comment: One commenter (A-90-19: IV-D-73) suggested establishing a uniform annual inspection frequency for all surface impoundments, containers, and individual drain systems.

Response: The EPA maintains that the inspection requirements for surface impoundments, containers, and individual drain systems are consistent and include: (1) an inspection to detect leaks in covers; and (2) inspections for improper work practices and control equipment failures. The leak inspection provisions in §63.148 of the final rule for surface impoundments, containers, and individual drain systems include an initial inspection of covers using Method 21 and semi-annual visual inspections of covers for visible, audible, or olfactory indications of leaks. Inspection of surface impoundments, containers, and individual drain systems for improper work practices and control equipment failures is required initially, and semi-annually thereafter. Semi-annual inspection for improper work practices and control equipment failures is required because these types of failures (e.g., leaving the cover off a container) would cause greater emissions than a leak in a cover.

Comment: One commenter (A-90-19: IV-D-117) suggested that operations personnel visually inspect drain covers at a minimum of once per day instead of semi-annually claiming that this would not cause an increase in control costs and would help prevent emissions.

Response: The EPA disagrees with the commenter (A-90-19: IV-D-117) that daily inspections would not increase the control costs for wastewater. The annual cost of compliance with the HON includes a labor cost which is equal to the labor wage rate ($/hr) multiplied by the number of hours per year the laborer spends to keep the facility in compliance with the HON. Increasing the number of hours per year that the laborer spends on inspections will increase the annual cost, and thus, increase the control cost.

Comment: One commenter (A-90-19: IV-D-64) stated that the EPA should reconsider whether an LDAR program is justified in as many places as it appears in subpart G. The commenter (A-90-19: IV-D-64) expressed particular concern about the LDAR program as it applies to low pressure and low temperature closed-vent systems. The commenter (A-90-19: IV-D-64) contended that an LDAR program may not be necessary for this type of control device. The commenter (A-90-19: IV-D-64) stated that the EPA should set a *de minimis* VOHAP concentration in wastewater for the LDAR provisions below which monitoring would not be required. The commenter (A-90-19: IV-D-64) stated that monitoring should not be required for equipment in which the total VOHAP concentration is less than 5 percent by weight and contended that engineering assessments should be adequate for determination of total VOHAP concentration. The commenter (A-90-19: IV-D-64) contended that the delay of repair provisions in

§63.171 of subpart H should also be included in the LDAR provisions in subpart G.

Response: The EPA has determined that a total VOHAP concentration in wastewater lower than 5 percent by weight can produce a concentration in the vapor space of a tank, container, etc., of 500 parts per million by volume above background from a leak. Therefore, the EPA has not added a *de minimis* VOHAP concentration for wastewater below which monitoring would not be required.

The leak inspection provisions for subpart G in §63.148(e) of the final rule specify that delay of repair can be invoked if the repair is technically infeasible without a process unit shutdown or if the emissions resulting from immediate repair would be greater than the fugitive emissions resulting from delay of repair.

Comment: One commenter (A-90-19: IV-D-73) requested that the inspection and monitoring requirements of wastewater closed-vent systems be regulated under the closed-vent provisions in §63.160(a) and §63.172 of subpart H, because common closed-vent systems often serve various types of emission points. The commenter (A-90-19: IV-D-73) agreed with the exclusions for bleeds and drains in §63.139(h), and for waiving component inspections if unsafe in §63.139(e). The commenter (A-90-19: IV-D-73) also agreed with the delay of repair provisions in §63.171 and favored retaining these three sections in the closed-vent system provisions.

Response: The EPA assumed by "drains," the commenter was referring to low leg drains. The EPA considered placing all of the inspection provisions that apply to closed-vent systems in §63.172 of subpart H; however, the EPA concluded that the regulation would be more clear if the closed-vent system requirements that apply to the SOCMI are consolidated within subpart G. Therefore, the EPA has combined the requirements for closed-vent systems into §63.148, which was a reserved section in the proposed rule. The reason for consolidating the closed-vent system requirements into one section is because common closed-vent systems often serve different emission points. This reorganization also reduces repetition within the regulation.

Comment: One commenter (A-90-19: IV-D-64) supported the provisions in §63.140 for delay of leak repairs when repair is infeasible without a process shutdown, but suggested that these provisions be moved to the general standards in §63.102 and be applied to all LDAR programs in subpart G.

Response: The leak inspection provisions for all of subpart G have been moved to §63.148 of subpart G in the final rule. Section 63.148(e) of subpart G allows delay of repair for leaks if the repair is technically infeasible without a process unit shutdown or if the emissions from immediate repair of the leak are greater than the emissions that would result from delay of repair. Since the provision in §63.148 of subpart G only apply to subpart G, they were not moved to the general standards provisions in §63.102 of subpart F in the final rule because subpart F applies to subpart H as well as subpart G.

6.12 MONITORING

Comment: Two commenters (A-90-19: IV-D-34) (A-90-23: IV-D-20) stated that the ranges required in tables 14a, 14b, 15a, 15b, and 16 should be deleted. One commenter (A-90-19: IV-D-34) stated that the requirements should be deleted because the concept of requiring ranges is not defined by the methods which are necessary to determine the data. The other commenter (A-90-23: IV-D-20) stated that §63.146, which requires a source to report the VOHAP concentration range provides no benefit because sources are required to make a Group 1 or Group 2 determination reflecting annual averages and ranges.

Response: In the final rule, the requirement to provide VOHAP concentration ranges in tables 14a, 14b, 15a, 15b, and 16 of subpart G has been eliminated. Furthermore, there are not specific methods required for the determination of VOHAP concentration. Section 63.144(b) of subpart G in the final rule allows knowledge of wastewater, bench-scale or pilot-scale test data, or sampling measurements to determine VOHAP concentration. Sampling measurements may be analyzed to determine VOHAP concentration using Method 305, Method 25D, or any other method validated according to section 5.1 or 5.3 of Method 301.

6.12.1 Treatment Processes

Comment: One commenter (A-90-23: IV-D-20) stated that the monitoring methods in table 11 in §63.143 should be made consistent by allowing Method 305 and any other applicable method, which has been validated using section 5.1 or 5.3 of Method 301, to be used to monitor items 1 and 3 of the table.

Response: The proposed rule did allow what the commenter has requested. The monitoring methods in table 11 in §63.143 of the proposed rule specified that Method 305 and any other applicable method which has been validated using section 5.1 or 5.3 of Method 301 could be used for items 1 and 3. In the final rule, monitoring items 1 through 6 have been eliminated from the monitoring requirements for treatment processes because these items are actually performance tests that can be used for demonstrating compliance. Section 63.145 of the final rule contains the provisions for determining compliance and these provisions allow the use of Method 305 or any other method that has been validated according to section 5.1 or 5.3 of Method 301 for the measurement of VOHAP concentration. The monitoring requirements for treatment processes are in table 12 of subpart G in the final rule.

Comment: One commenter (A-90-23: IV-D-20) stated that §63.145(c)(3)(i), which requires that flow meters be used on both the inlet and outlet flow of treatment processes, should be modified to allow a SOCMI source the option of placing a single flow meter at the inlet when the treatment process has an outlet flow that is not greater than the inlet (such as adsorption or biological treatment).

Response: The EPA agrees that in instances when the outlet flow is not greater than the inlet flow, a flow meter at either the inlet or outlet is sufficient for determining the flow rate.

Comment: One commenter (A-90-19: IV-D-73) suggested that the EPA reduce the frequency of monitoring for treatment alternatives 1 - 7 in table 11 of §63.143, and that the monitoring schedule should be based on the probability of emission exceedance estimated from one year of monthly monitoring data. The commenter (A-90-19: IV-D-73) provided a statistical approach to determine monitoring frequency. The commenter (A-90-19: IV-D-73) claimed that this approach would reward processes with high efficiencies and encourage facilities to install processes with high efficiencies to decrease required sampling frequency. One commenter (A-90-19: IV-D-89) suggested using quarterly monitoring requirements in table 11 of proposed subpart G. The commenter (A-90-19: IV-D-89) recommended keeping continuous data on critical operating variables and considering a QA/QC program similar to the valve QA/QC program listed in subpart H.

Response: The monitoring requirements for treatment alternatives 1-6 in table 11 of the proposed subpart G have been eliminated. Proposed table 11 is table 12 in the final rule. The EPA has determined that these monitoring requirements were performance tests that are required by §63.145 of subpart G to demonstrate compliance. The monitoring requirements for treatment alternative 7 in table 11 of the proposed rule have been increased from monthly monitoring requirements to continuous monitoring requirements in order to be consistent with, and as stringent as, the monitoring requirements for steam stripping. For alternative 7 from table 11 of the proposed rule, Method 304A or 304B is required initially, and those parameters that are monitored upon approval from the permitting authority must be monitored continuously.

6.12.2 Waste Management Units

Comment: One commenter (A-90-19: IV-D-32) claimed that annual monitoring, semi-annual visual inspection, and repair may not be possible for all portable containers. The commenter (A-90-19: IV-D-32) reasoned that some portable containers may no longer be onsite or may not be owned by the plant owner. Thus, the commenter (A-90-19: IV-D-32) concluded that these requirements should be deleted from the rule.

Response: The EPA recognizes that many containers, which by definition must be portable, may be sent offsite or may be owned by someone other than the owner or operator of a SOCMI plant. In the final rule, the EPA has reduced the inspection requirements for containers. The EPA has revised table 11 of subpart G of the final rule to require the owner or operator to perform Method 21 testing initially but the EPA has deleted the requirement to inspect containers semi-annually for improper work practices. In fact, only certain large containers still require any monitoring. Refer to section 4.1.7 of this BID volume for more information.

Comment: Two commenters (A-90-19: IV-D-32), (A-90-23: IV-D-20) stated that the EPA should exempt surface impoundments that are operated under a vacuum from leak test requirements in §63.134.

Response: In the final rule, §63.134(b)(4) of subpart G exempts from the leak detection requirements any cover on a surface impoundment and the corresponding control device if the cover and control device are operated and maintained under negative pressure.

Comment: One commenter (A-90-19: IV-D-34) stated that the period of repair for floating roofs on oil-water separators is too short and would be difficult to complete within 15 days. The commenter (A-90-19: IV-D-34) suggested that 45 days be provided, which is the same time frame for wastewater tank repairs. Two commenters (A-90-19: IV-D-64) (A-90-23: IV-D-20) stated that allowing only 15 days for final repair of a leak in a surface impoundment in §63.134(d) and 45 days for final repair of a leak in a wastewater tank in §63.133(g) seems inconsistent. The commenters (A-90-19: IV-D-64) (A-90-23: IV-D-20) requested that the EPA modify the leak repair provisions for surface impoundments to be consistent with the requirements for wastewater tanks.

Response: The EPA believes that an error in the proposed rule has led to confusion regarding the period allowed for making repairs. The proposed §63.133(g) implied that 45 days would be allowed for repair of improper work practices, control equipment failures, and leaks. This was not the EPA's intent. The EPA intended to allow 15 days for repair of leaks from all waste management units. In the final rule, this has been clarified by placing all subpart G provisions for leak detection and repair in a new section (§63.148). This new section includes provisions in §63.148(e) for delay of repair if the repair is technically infeasible without a process unit shutdown or if the emissions from immediate repair would be greater than the emissions from delay of repair. It should be noted that a 15-day period for repair of leaks is consistent with subpart H of the HON and with previous rules for equipment leaks.

The EPA intended to allow 45 days for repair of control equipment failures (e.g., repair of a floating roof) because such repairs would likely take longer than 15 days to complete. In the proposed rule, §63.133(g) indicated that 45 days would be allowed for repair of control equipment failures for wastewater tanks. This repair period was selected because it is consistent with the provisions for repair of storage vessels. This allowance was inadvertently not included in the proposed provisions for surface impoundments and oil-water separators.

Because the repair provisions for control equipment failures were specified in the same paragraph in the proposed rule as those for leaks and improper work practices, it appeared that the 15-day period for leak repair for surface impoundments and oil-water separators would also apply for repair of control equipment failures for these units. This was not the EPA's intent.

In the final rule, it has been clarified that control equipment failures for wastewater tanks, surface impoundments, and oil-water separators must be repaired within 45 days.

It should be noted that both the proposed and final rule include provisions in §63.140 for delay of repair of control equipment failures and improper work practices if the repair is technically infeasible without a process unit shutdown or if the emissions from immediate repair would be greater than the emissions from delay of repair.

Comment: One commenter (A-90-19: IV-D-64) expressed concern about why an LDAR program should be required for the roof and roof fittings of a wastewater tank, surface impoundment, or oil-water separator when it is not required for a fixed roof or internal floating roof storage vessel. The commenter (A-90-19: IV-D-64) stated that the LDAR requirements should be removed from those appropriate sections of the proposed wastewater regulation.

Response: An LDAR program is not required for a fixed roof or internal floating roof storage vessel, because such vessels contain valuable product, and the EPA has determined that leaks in these types of tanks will be carefully monitored by the owner or operator to reduce product loss. Furthermore, the leak detection and repair provisions for fixed roofs on wastewater tanks, covers on surface impoundments, and fixed roofs on oil-water separators have been amended for the final rule. An inspection of the fixed roof or cover using Method 21 is required initially in the final rule, as proposed. However, the final rule requires an annual visual inspection for visible, audible, or olfactory indications of leaks, instead of an annual Method 21 inspection.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-75) argued that allowing visual monitoring of p-traps and s-traps would eliminate unnecessary water flows and would be consistent with pollution prevention practices without increasing emissions. One commenter (A-90-19: IV-D-32) stated that drains which are regularly used for discharges should not be routinely inspected. The commenter (A-90-19: IV-D-32) stated that the regulation should allow the use of non-volatile organic liquids (e.g., glycols) to be used as a vapor barrier in p-trap and s-trap drains. One commenter (A-90-19: IV-D-73) suggested replacing the monitoring requirements for drains with a general duty requirement to operate traps and seals as designed.

Response: The requirements in §63.136(e)(1) of subpart G in the final rule require the owner or operator to ensure that water is maintained in a p-trap or s-trap. Verifying the continuous flow of water to the trap is only an example of how an owner or operator would verify the continuous presence of water in a trap. Therefore, an owner or operator may choose to visually monitor the p-traps and s-traps to verify the presence of water instead of monitoring the continuous flow of water to the traps. The monitoring requirements for p-traps and s-traps in table 11 of subpart G have been modified to clarify that monitoring the continuous flow of water to the traps is only one example of how to verify the presence of water in a trap.

Routine inspection of drains is not required. Rather, semi-annual inspections are required. It is unclear what the commenter (A-90-19: IV-D-32) means by "drains that are regularly used for discharges". If the owner or operator can verify the continuous flow of water to the p-traps and s-traps, then such drains would not require inspection.

It is not clear what the commenter (A-90-19: IV-D-73) means by a "general duty requirement to operate traps and seals as designed". However, if a "general duty requirement" can verify the continuous presence of water in the drain, then the traps and seals themselves need not be inspected.

The EPA does recommend "non-volatile" organic liquids such as glycols to be used as vapor barriers in p-trap and s-trap drains because water will work sufficiently as a vapor barrier. Furthermore, some glycols are regulated by the wastewater provisions of the HON.

6.12.3 Control Devices

Comment: One commenter (A-90-19: IV-D-32) stated that certain wastewater monitoring requirements for closed-vent systems in table 12 and §63.143 should be modified to make them more appropriate for the range of control options that may be used. The commenter (A-90-19: IV-D-32) suggested that scrubbers (absorbers) are an example of a closed-vent control device which is not listed in the monitoring requirements.

Response: The control devices listed in table 12 of proposed subpart G (table 13 of the final rule) are only examples of the control devices that can be used in conjunction with closed-vent systems. Section 63.139(c)(1) of the final rule states that an enclosed combustion device can include but is not limited to vapor incinerators, boilers, or process heaters, and §63.139(c)(2) states that a recovery device can include but is not limited to a carbon adsorption system or condenser. Furthermore, §63.139(c)(5) of the final rule allows the use of any control device for a closed-vent system that reduces emissions by 95 percent. The EPA realizes that the control devices listed in table 12 of the proposed rule are only examples, but the EPA cannot list the monitoring requirements for all possible control devices. If an owner or operator chooses to use a closed-vent control device other than those listed in table 13 of the final rule, the owner or operator must obtain approval from the permitting authority for the parameters that the owner or operator wishes to monitor.

The EPA did not include absorbers as an example of a closed-vent control device, because the most widely used scrubbing medium for absorbers is water. The EPA assumed that an owner or operator would not use an absorber with water as the scrubbing medium to control the emissions of HAP's that had previously been removed from wastewater. However, absorbers can be used as closed-vent control devices as long as they achieve an emission destruction of 95 percent.

Comment: One commenter (A-90-19: IV-D-89) suggested that the monitoring frequency for non-regenerative carbon adsorbers specified in table 12 of §63.143 should be extended to 50 percent of the design replacement interval if there are carbon adsorbers in series. The commenter (A-90-19: IV-D-89) stated that since a second canister is on line, the monitoring frequency can be extended beyond the normal single canister replacement interval.

Response: Regarding the monitoring frequency for non-regenerative carbon adsorbers as specified in table 13 of subpart G in the final rule, the EPA continues to require organic compound concentration monitoring of the adsorber exhaust either daily or at intervals no greater than 20 percent of the design carbon replacement interval, whichever is greater. The EPA continues to include as an alternative to this monitoring the option for the owner or operator to replace the carbon in the carbon adsorption system at a regular predetermined interval that is less than the carbon replacement interval. The owner or operator must consider (1) the maximum design flow rate and (2) the organic concentration in the gas stream that is vented to the carbon adsorber when determining how often to replace the carbon. Because the final rule allows for scheduled replacement of carbon in lieu of monitoring for non-regenerative carbon adsorption systems, the EPA maintains that the monitoring frequency stated in the proposed rule remains appropriate for owners or operators who elect to monitor.

6.12.4 Method 21

Comment: One commenter (A-90-19: IV-D-34) stated that many of the requirements for the use of containers in wastewater service are not reflected in any of the floor determinations and are difficult and expensive to achieve. The commenter (A-90-19: IV-D-34) expressed concern that the proposed rule requires for existing equipment, which meets the proposed definition of container, that all covers and openings for each container be "designed for and operated without leaks at the 500 ppmv level as determined by Method 21." The commenter (A-90-19: IV-D-34) recommended that the EPA develop work practice standards that focus on keeping containers closed when in use rather than a complex monitoring and replacement strategy. The commenter (A-90-19: IV-D-34) provided alternate regulatory language which incorporated all recommendations to the EPA.

Response: The floor for the control of wastewater emissions from containers is no control, because the EPA has determined that at proposal, covers, control devices, and submerged fill pipes were not used by industry for containers. Furthermore, the MACT floor for control of wastewater emissions from any waste management unit or drain system is no control. However, the Administrator determined that it was appropriate to establish wastewater requirements above the floor.

The inspection requirements for leaks in covers have been changed in the final rule. Section 63.148 of the final rule only requires an initial inspection using Method 21. Annual visual inspections for visible, audible, or olfactory indications of a leak are required in the final rule, instead of annual inspections using Method 21 as proposed.

Comment: One commenter (A-90-19: IV-D-33) stated that the monitoring requirements for treatment processes in proposed §63.143(b) are overly burdensome and should be modified to allow for greater flexibility and to minimize redundancy between the Act and the CWA monitoring requirements on the same waste streams.

Another commenter (A-90-19: IV-D-33) stated that facilities should be allowed to monitor surrogate parameters or monitor less frequently if a different parameter or reduced frequency is allowed by their CWA permit, which is issued pursuant to NPDES or an industrial pretreatment program. The commenter (A-90-19: IV-D-33) stated that the monitoring frequency is established on a case-by-case basis, taking into account such factors as toxicity, expected treatment efficiency, demonstrated performance of the treatment process, facility compliance history, sampling and analytical costs, and the resulting burden on the regulator to review records and process reports from the facility. The commenter (A-90-19: IV-D-33) stated that such case-by-case factors are relevant to wastewater monitoring for the HON.

Response: The EPA agrees with certain points raised by the commenter and has reduced the monitoring requirements for treatment processes. After determining that the performance criteria in §63.145 were sufficient to ensure compliance with the wastewater treatment requirements in the HON, the EPA deleted the monthly monitoring requirements that were in table 11 of subpart G of the proposed rule. The remaining monitoring requirements in table 12 of subpart G of the final rule (i.e., table 11 in the proposed rule) require continuous monitoring for certain operating parameters associated with the design steam stripper and biological treatment systems.

Comment: One commenter (A-90-19: IV-D-92) suggested only regulating surface impoundments with emissions greater than 500 ppmv above background, because this quantity of emissions is allowed from openings. Another commenter (A-90-19: IV-D-2) suggested using a mass threshold or a percentage of total facility emissions threshold for control of surface impoundments and individual drain systems to avoid controlling systems with low emissions.

Response: In response to the commenter's suggestion not to require emission controls on surface impoundments that emit less than 500 ppmv above background, the EPA clarifies that the 500 ppmv determination is a criterion for the inspection provisions. It is not an allowable emission rate, but rather an indication of whether a system has adequate emission suppression. The EPA requires emission controls on all surface impoundments managing wastewater streams that are subject to regulation.

The purpose of the equipment standard is to ensure that air emissions are suppressed. Emissions from wastewater are directly proportional to the exposed surface area. For this reason, modifying the regulatory requirements would result in substantially higher emissions than the control requirements of the proposed HON regulation. Therefore, the EPA has not implemented this suggestion in the final HON regulation.

To provide greater flexibility, the EPA has added a provision which allows an owner or operator to demonstrate through a pressure test that the surface impoundment and associated closed-vent system are under negative pressure.

This type of demonstration satisfies the monitoring requirement so that the owner or operator is not also required to perform Method 21. In addition, both the applicability criteria (i.e., VOHAP concentration and flow rate) and the 1 Mg/yr sourcewide compliance option in §63.138(c)(5) and (6) are intended to exempt from the control requirements of §63.138 wastewater streams with low emissions relative to the cost of control. Therefore, the final rule avoids the unnecessary control of waste streams and wastewater streams that have a low potential for emissions.

The EPA clarifies that owners and operators must comply with §63.133 through §63.137 only when the wastewater collection and treatment units regulated under these parts of the HON regulation are used to receive, manage, or treat a Group 1 wastewater stream or a residual removed from a Group 1 wastewater stream.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-73) recommended that fugitive emissions monitoring requirements based on Method 21 be deleted from subpart G and suggested that if the EPA must include fugitive emissions testing requirements for wastewater management units, these sources should be included in subpart H. One commenter (A-90-19: IV-D-32) stated that the EPA has not performed an analysis of the cost and environmental benefits associated with requiring leak testing to be performed on sources of fugitive emissions.

Two commenters (A-90-19: IV-D-32; IV-D-102) stated that Method 21 is inappropriate for VOHAP measurements because it measures total VOC content, not just VOHAP's, and it is ineffective for measuring low levels of volatile organics. Two commenters (A-90-19: IV-D-97; IV-D-102) recommended that all references to the use of Method 21 for wastewater streams be deleted from the HON and replaced by visual inspection only. One commenter (A-90-19: IV-D-73) was unsure if Method 21 was valid for detecting leaks from fixed roof wastewater tanks and pointed out that no provisions are made for repair if a leak is found in a fixed roof.

One commenter (A-90-19: IV-D-31) claimed that the ability to measure and repair small leaks less than 500 ppmv is not practical. The commenter (A-90-19: IV-D-31) claimed that Method 21 was originally intended to evaluate leaks of pure compounds at levels of 10,000 ppmv. The commenter (A-90-19: IV-D-31) asserted that wastewater tanks with low to moderate concentrations may produce a vapor content much less than 500 ppmv, and Method 21 leak detection testing would be useless. The commenter (A-90-19: IV-D-31) supported exempting tanks with low concentrations of wastewater from Method 21 testing to avoid needless expenses.

<u>Response</u>: The EPA reviewed the option of consolidating all fugitive emission testing in subpart H. However, due to the structure of subpart H and to the different compliance schedules for subparts G and H, incorporating the leak inspection requirements from subpart G into subpart H would have generated additional confusion in the regulated community. In particular, the leak inspection provisions associated with wastewater management were not easily incorporated into subpart H. The EPA agrees that the leak inspection requirements which were located in separate sections for each emission point in subpart G should be condensed into a single section. Therefore, in the final rule, the EPA incorporated all leak inspection provisions for subpart G into §63.148.

In response to the technical comments about the use of Method 21, the EPA asserts that the method was designed to detect leaks from equipment. Method 21 is not used for measuring emission rates. Many existing rules have incorporated similar requirements. The EPA continues to require at least the initial use of Method 21 for leak detection followed by annual visual inspections for most waste management units. The EPA has incorporated all provisions for repairing any leaks detected by Method 21 in §63.148 of subpart G.

The EPA points out that Method 21 is effective for detecting concentrations of 500 ppmv VOC's in the air. For example, Method 21 testing will indicate that 500 ppmv VOC's is present in the air above an open wastewater tank when a concentration as low as five percent VOC's is present in the wastewater. For additional discussion about the capacity and vapor pressure thresholds for wastewater tanks that were incorporated into the final rule, refer to section 4.1.9 of this BID volume.

Comment: One commenter (A-90-23: IV-D-31) stated that it was unclear whether or not the two conditions described in subpart H as "unsafe to screen" and "inaccessible" for Method 21 leak detection would apply to subpart G. The commenter (A-90-19: IV-D-31) claimed that these exemptions would eliminate wastewater tanks and wastewater tank roofs where components cannot be reached safely.

Response: The Method 21 requirements from the proposed wastewater provisions have been moved to §63.148 of subpart G. Within §63.148 are provisions that are written to ensure that equipment that is "unsafe to inspect" is exempt from the initial Method 21 inspection requirements. There are also provisions in §63.148 that are written to ensure that equipment that is "difficult to inspect" is exempt from the initial Method 21 inspection requirements. Equipment that is "unsafe to inspect" or "difficult to inspect" is only subject to annual visible, audible, and olfactory inspection requirements. In this case, "difficult to inspect" encompasses any piece of equipment that is inaccessible. The Method 21 requirements in §63.148 of subpart G apply to wastewater tanks, as well as surface impoundments, containers, individual drain systems, oil-water separators, and closed-vent systems.

Comment: One commenter (A-90-19: IV-D-31) suggested that Method 21 leak detection should not be required for fixed roof wastewater tanks under a continuous negative pressure. The commenter (A-90-19: IV-D-31) claimed that no leaks can occur under these conditions and recommended adding a measurement of static pressure to the Method 21 applicability criteria for fixed roof tanks.

Response: In the final rule, §63.133(b)(4) of subpart G exempts any fixed roof wastewater tank and closed-vent system that is operated and maintained under negative pressure from leak inspections using Method 21.

Comment: One commenter (A-90-19: IV-D-31) claimed that restricting the Method 21 calibration gas to a mixture of methane in air limits Method 21 to the use of an instrument with an FID or NDIR detector, because a PID will not respond to methane. The commenter (A-90-19: IV-D-31) claimed that Method 21 can be used with several reference gases for which response factors of the affected HAP have been determined and/or published and that the PID has the optimum response for some HAP's.

Response: The EPA clarifies that Method 21 does not restrict the calibration gas to a mixture of methane and air, but rather requires an adjustment of the readings to a methane basis. Therefore, PID may be used, but must be adjusted to a methane basis. The reason that all must be adjusted to a methane base is because having a single base makes measurements from all instruments regardless of calibration gas comparable. Refer to chapter 5.0 of BID volume 2A for additional discussion of the issue.

Comment: One commenter (A-90-19: IV-D-31) claimed that using the predominant HAP in the wastewater stream to determine the Method 21 response factor could cause the screening values to be high. The commenter (A-90-19: IV-D-31) also claimed that the predominant HAP in the wastewater may not necessarily be the predominant HAP in the vapor stream.

Response: The EPA agrees that the predominant HAP in the wastewater may not be the predominant HAP in the vapor stream. Therefore, in the final rule, the EPA no longer requires response factor adjustments. For additional discussion of actual monitoring requirements, refer to chapter 5.0 of BID volume 2A.

Comment: One commenter (A-90-19: IV-D-64) requested that the EPA clarify language in §63.133 through §63.138, which states that a roof or cover "shall be designed and operated without leaks as indicated by an instrument reading of less than 500 ppm by volume..." The commenter (A-90-19: IV-D-64) stated that the EPA must specify which points on the roof or cover must be monitored because monitoring the entire surface would be unreasonable.

Response: The leak inspection provisions from §63.133 through §63.138 of the proposed rule have been moved to §63.148 in the final rule. In §63.148 of the final rule, the leak inspection provisions and the Method 21 requirements for all of subpart G are clarified. Section 63.148(c)(6) of the final rule specifies which points on the roof or cover must be monitored and includes "all potential leak interfaces".

Comment: One commenter (A-90-19: IV-D-34) suggested that the EPA should delete the annual monitoring requirement in §63.133(b)(1)(ii) and replace it with a provision to repair equipment if there is sensory evidence (visual, olfactory, or audible) of a leak.

Response: The annual Method 21 inspection requirements in §63.133(b)(1)(ii) of the proposed rule have been deleted. As described in §63.148 of subpart G and table 11 of subpart G of the final rule, the owner or operator must conduct an initial inspection using Method 21 and semi-annual visual inspections for visible, audible, or olfactory indications of leaks in fixed-roof tanks.

6.12.5 Heat Exchange Systems

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-34; IV-D-36; IV-D-53; IV-D-67; IV-D-110; IV-D-112) (A-90-23: IV-D-4) stated that the sampling provisions in §63.102(b)(2)(ii) seem to require sampling cooling water at the entrance and exit of each heat exchanger system. One commenter (A-90-19: IV-D-89) claimed that most heat exchange systems are piped in parallel.

One commenter (A-90-19: IV-D-89) provided a figure to help clarify where sample ports should be located, showing sample ports at the cooling water supply and the cooling water return.

Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-34; IV-D-36; IV-D-53; IV-D-67; IV-D-110; IV-D-112) (A-90-23: IV-D-4) disagreed with requiring sampling of each heat exchanger and recommended that the EPA rewrite the provision to require sampling at the entrance and exit of each cooling tower system that services a unit.

One commenter (A-90-19: IV-D-38) claimed that cooling towers are the only source of emissions in heat exchange systems and further claimed that it should be specified in the regulation that monitoring is required for the return water and not the individual heat exchangers. One commenter (A-90-19: IV-D-50) claimed that it was unclear where cooling water samples are to be taken.

Response: The EPA requires sampling at the entrance and exit of each heat exchange system. A heat exchange system is not a heat exchanger. The EPA has defined a heat exchange system as any cooling tower system or once-through cooling water system (e.g., river or pond water). Therefore, sampling is not required at the entrance and exit of each heat exchanger. Rather, sampling is required at the entrance and exit of each cooling tower for recirculating systems, or the points at which the cooling water enters and exits the once-through cooling water system for nonrecirculating systems.

Sampling of both the cooling water supply and the cooling water return is necessary in order to determine the emissions from the cooling tower. Sampling only the return water would not demonstrate when there is a concentration differential across the tower, and would therefore not indicate when compounds are volatilizing from a heat exchange system.

Comment: One commenter (A-90-19: IV-D-86) argued that the sampling requirements for cooling towers are too burdensome for multi-purpose batch operations due to the variety of compounds in the cooling water.

Response: The monitoring requirements for heat exchange systems do not require speciation of HAP's. Facilities can monitor for speciated HAP, total HAP, total VOC concentration, or TOC for semi-volatile HAP's. Therefore, a variety of compounds in the cooling water will not overburden facilities when complying with monitoring requirements.

Comment: One commenter (A-90-19: IV-D-38) suggested two different options for monitoring heat exchange systems. The commenter (A-90-19: IV-D-38) recommended speciation of HAP's monthly for 6 months and then quarterly for the remainder of two years and then using an average concentration determined from this data to speciate any future leaks that are detected using more conventional methods. The commenter (A-90-19: IV-D-38) recommended using a monitoring frequency determined by the facility according to historical needs.

Response: The EPA will allow monitoring of speciated HAP, total HAP, total VOC concentration, or TOC for semi-volatile HAP's to detect leaks in a heat exchange system. The monitoring requirements for heat exchange systems do not include speciation of the inlet and outlet samples.

Conventional methods may indicate when the average concentration in the cooling water increases, but conventional methods do not provide any information on the magnitude of the concentration differential across the cooling tower or the magnitude of emissions from the cooling tower. Furthermore, historical needs cannot indicate when a leak will occur in a heat exchange system. As heat exchange system equipment becomes older, it is more likely to develop a leak. A facility with relatively new equipment will probably have had few leaks, but as the facility becomes older, the equipment may develop more leaks.

Comment: One commenter (A-90-19: IV-D-89) suggested supplying a reference or guidance which clarifies the basis for the methodology used to determine leaks in heat exchange systems and requested that EPA specify which methods are acceptable to determine HAP concentration in the cooling water. One commenter (A-90-19: IV-D-38) presented a list of test methods and devices that the commenter (A-90-19: IV-D-38) claimed can detect a leak, determine its magnitude, and provide characteristics of the contaminant.

Response: The EPA allows several methods to detect leaks from cooling water, but has not provided a list in this BID volume.

Comment: One commenter (A-90-19: IV-D-89) favored allowing 30 days from initial knowledge of a heat exchanger leak until isolation, repair, or delay of repair is required, because of sample turnaround time. One commenter (A-90-19: IV-D-73) recommended that a 60-day repair period be provided and an additional 60-day extension be allowed for repairing a heat exchanger leak. The commenter (A-90-19: IV-D-73) claimed that it takes several days to determine which heat exchanger is leaking and that heat exchangers usually do not have a backup so shutdown is therefore required.

One commenter (A-90-19: IV-D-33) requested that the EPA clarify at what point the 15 calendar days for repair of a leaking heat exchanger begin. The commenter (A-90-19: IV-D-33) recommended that the 15 days begin when the results of any necessary analyses are known by the owner or operator of the facility.

One commenter (A-90-19: IV-D-34) stated that the proposed repair periods for heat exchanger leaks are impractical. The commenter (A-90-19: IV-D-34) contended that the 15 calendar days in which to repair a detected leak specified in §63.102(b)(2)(v) should be extended to 90 days because special parts may be needed and maintenance schedules may require adjustment. The commenter (A-90-19: IV-D-34) added that because the delay of repair provisions in §63.102(b)(3) reference a process unit shutdown, the term "process unit shutdown" should be defined in §63.101 rather than §63.161. The commenter (A-90-19: IV-D-34) contended that only planned process unit shutdowns and not emergency or unplanned shutdowns should trigger the requirement for repair.

Response: Based on comments received by the EPA, the amount of time that a facility has to repair a leak in a heat exchange system has been extended from 15 days to 45 days. The 45 days to repair a leak begins when the results of the monitoring tests indicate that a leak is present (i.e., when a 1 ppm differential across a heat exchange system is detected). A definition of process unit shutdown has been added to §63.101. The EPA has elected to keep the definition of process unit shutdown in §63.111 and §63.161 also. If a heat exchanger cannot be repaired without a process unit shutdown, a shutdown is required to repair the leak, unless the owner or operator can show that a shutdown would cause more emissions than the leak. Unplanned shutdowns are required for leaks in a heat exchange system, because large quantities of emissions can be released from an unrepaired leak in the system. For example, an average-size cooling tower (15,000 gpm) with a leak of only 1 ppm can emit almost 3 tons in one month if left unrepaired.

Extending the repair period for a leak in a heat exchange system by 30 days will allow a sufficient amount of time for a facility to determine which heat exchanger is leaking. The extension also allows enough time to adjust maintenance schedules and order special parts.

Comment: One commenter (A-90-19: IV-D-38) agreed with the delay of repair provisions for cooling water systems.

Response: Based on comments received, the EPA has extended the amount of time that a facility has to repair a leak in a heat exchange system from 15 to 45 days. The EPA has determined that 15 days is an insufficient amount of time for a facility to repair a leak in all cases. In certain cases, an owner or operator may have trouble identifying which heat exchanger is leaking, or may have to adjust maintenance schedules, or order special parts. Furthermore, a facility must now shut down if the leak cannot be repaired in 45 days, unless the owner or operator can demonstrate that the emissions from shutdown are greater than the emissions from the leak. This provision was added because the EPA has determined that a significant amount of emissions can occur from a cooling tower if the leak is left unrepaired (Memorandum from Kristine Pelt, Radian, to Mary Tom Kissell, EPA/SDB, "Leaks from a Heat Exchange System," November 23, 1993).

6.12.5.1 Cooling Tower Systems

Comment: Several commenters (A-90-19: IV-D-53; IV-D-73; IV-D-38) claimed that a 1 percent or 1 ppm variation of TOC levels in cooling water systems cannot be detected or duplicated because of the low VOHAP concentrations typically present in cooling water systems. Because of the inherent uncertainty of analytical methods, two commenters (A-90-19:

IV-D-53; IV-D-110) recommended that the EPA use analytical method performance data to determine when a concentration increase indicates a leak. One commenter (A-90-19: IV-D-53) claimed that even the best analytical methods have precisions of about 9 or 10 percent and recommended dropping the 1 percent criterion to determine a leak from the rule. One commenter (A-90-19: IV-D-50) claimed that the definition of leak does not have any basis. Two commenters (A-90-19: IV-D-36) (A-90-20: IV-D-20) stated that the EPA should not consider a change in a reading of one part per million or one percent to be a cooling water system leak. The commenters (A-90-19: IV-D-36) (A-90-20: IV-D-20) stated that if the outlet stream had a low flow rate, a concentration of one part per million or one percent would not be a concern, and thus, the EPA should set action levels based on the size of the flow exiting the tower.

Two commenters (A-90-19: IV-D-32; IV-D-54) stated that the wastewater VOHAP concentration that is used to identify a leak in a cooling water system should be based on the potential to emit. Three commenters (A-90-19: IV-D-32; IV-D-54; IV-D-110) contended that the proposed leak detection action criteria in §63.102(f)(2)(iv) may be appropriate for cooling systems using large volumes of water for heat exchange, but are unnecessarily restrictive for smaller cooling systems since the potential to emit significant amounts of HAP's is proportionately smaller. One commenter (A-90-19: IV-D-32) provided a table of recommended action levels expressed as the concentration of total VOHAP in the wastewater which are dependent on water flow rate.

Response: A 1 ppm variation in concentration is the lowest variation that can be measured. The EPA defines a leak as a statistically significant difference of at least 1 ppm in speciated HAP, total HAP, or total VOC concentration at the 95 percent confidence level. The 95 percent confidence level allows for variation at low concentration levels. The one-percent variation in total HAP levels has been eliminated as a leak criterion.

Even for cooling towers with low flow rates, a 1 ppm variation across the cooling tower can cause significant emissions. For example, a 1 ppm variation across a cooling tower with a flow rate of only 2,000 gallons per minute will result in over 2 tons of emissions if left undetected for 6 months. Therefore, it is necessary to monitor cooling towers with low flow rates on a quarterly basis.

The EPA is allowing TOC as a monitoring parameter for semi-volatile HAP's listed in Method 625, but not for volatile HAP's.

Comment: Two commenters (A-90-19: IV-D-38; IV-D-89) claimed that the cooling water monitoring requirements for the large list of HAP's will be expensive, costing approximately $300 - $400 per sample analyzed. One commenter (A-90-19: IV-D-89) suggested performing the cheaper Total Purgeable Organic Carbon tests on the cooling water and only requiring a sampling program if the return water carbon is over 10 percent higher than the supply water at a 95 percent confidence limit.

One commenter (A-90-19: IV-D-38) suggested that each facility be allowed to develop a site-specific monitoring program for heat exchange systems. The commenter (A-90-19: IV-D-38) suggested using a TOC test to determine the "normal" level of organic material found in a cooling water system and using this "baseline" to determine system changes. The commenter (A-90-19: IV-D-38) also provided a list of "conventional ways" to determine a leak, including an increase in TOC, loss of heat transfer, oil sheen on the water surface, etc. One commenter (A-90-19: IV-D-53) claimed that process knowledge can be used to determine a heat exchanger leak.

Several commenters (A-90-19: IV-D-32; IV-D-54; IV-D-112) suggested that the EPA allow a surrogate parameter for routine testing and require more extensive testing if the surrogate parameter indicates a leak.

Response: The monitoring requirements for cooling towers in §63.104 of subpart F have been changed to allow testing of speciated HAP, total HAP, TOC for semi-volatile compounds, or total VOC concentration. A leak will be indicated by a statistically significant difference in speciated HAP, total HAP, or total VOC concentration of 1 ppm at the 95 percent confidence level. The one percent increase of total HAP concentration as a criterion for a leak has been eliminated from the final rule.

Performing a TOC test to determine the "normal" level or organic material does not guarantee that a leak will be detected. If the TOC test is performed when a heat exchanger is leaking, the "normal" level of organic material will be elevated. Furthermore, determining the "normal" level of TOC in cooling water does not provide any information on the concentration differential across the cooling tower or the quantity of emissions generated by the cooling tower.

Conventional ways of determining a leak or surrogate parameters cannot predict the magnitude of the leak and do not provide information on the concentration differential across the cooling tower. Conventional methods or surrogate parameters can help determine when a heat exchanger is leaking. However, the EPA's definition of a leak in a heat exchange system does not always coincide with a leak in a heat exchanger, unless the leaking compounds volatilize in the cooling tower.

The EPA is allowing the TOC test for only semi-volatile HAP's listed in Method 625. The EPA is not allowing TOC for volatile compounds as specified in Method 624 because too much of the volatile HAP may be lost during the handling of the sample. The method does not safeguard against emission losses when transferring the sample. In contrast, methods such as

Methods 624 and 8020 require sealed caps and other sample preserving techniques. Method 301 may be used to validate other methods used to monitor volatile HAP's.

The EPA has no fundamental objection to using TOC as a monitoring parameter, but it is not appropriate for volatile HAP's. The EPA is allowing TOC as a monitoring parameter for semi-volatile HAP's because such HAP's are less likely to volatilize during sampling. Because the TOC test is less costly than a total HAP or speciated HAP test, the EPA has provided a more cost-effective method for owners or operators with semi-volatile HAP's.

<u>Comment</u>: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-54; IV-D-112) disagreed with the requirement in §63.102 which requires testing for total VOHAP concentrations in cooling water. The commenters (A-90-19: IV-D-32; IV-D-33; IV-D-54; IV-D-112) suggested that the EPA specify an action level based on HAP's in table 9 as the basis for implementing leak detection requirements.

One commenter (A-90-19: IV-D-73) concurred that monitoring of cooling water should be limited to table 9 HAP's because these HAP's will volatilize from water. One commenter (A-90-19: IV-D-110) stated that the EPA should require testing for total VOHAP concentration rather than total HAP concentration because only table 9 HAP's are subject to the wastewater provisions. One commenter (A-90-19: IV-D-53) claimed that treatment chemicals and variation of intake water quality could interfere with leak detection if the regulation requires testing of total HAP's. One commenter (A-90-19: IV-D-73) stated that cooling towers should only be monitored for HAP's present in the unit(s) being serviced by the cooling tower.

<u>Response</u>: The monitoring requirements for heat exchange systems allow for sampling of speciated HAP, total HAP, total VOC concentration, or TOC for semi-volatile HAP's. A leak is

detected in a recirculating cooling system if the influent concentration to the cooling tower is at least 1 ppm higher than the effluent concentration from the cooling tower. Therefore, a leak is detected only if there are compounds volatilizing from the cooling tower. Compounds that do not readily volatilize from water (HAP's not listed on table 9) will not cause a concentration differential across the cooling tower. Therefore, the definition of leak is based on whether or not the compounds in the cooling water are volatile, and repair of leaks is only required when the compounds in the cooling water are volatile.

Comment: One commenter (A-90-19: IV-D-34) suggested that if the EPA is going to regulate new cooling tower emissions, a design standard such as the ASME code for heat exchange systems should be considered rather than a LDAR standard for new heat exchangers.

Response: A design standard such as the ASME code for heat exchange systems does not guarantee that the heat exchanger will not leak. ASME codes are written for design and safety purposes. They ensure that a piece of equipment, such as a heat exchanger, achieves the desired performance level and operates safely. Furthermore, it is the actual construction and not the construction code that will determine if the heat exchanger will leak. For example, the heat exchanger may be defective or the material of construction may corrode due to old age or due to the types of chemicals being processed. Therefore, a leak detection and repair program is still necessary to ensure that a heat exchanger is not leaking.

Comment: One commenter (A-90-19: IV-F-7.43 and IV-D-117) claimed that the cooling water monitoring requirements in §63.102(b)(2) provide a loophole which allows large emissions of volatile HAP's and other VOC's. The commenter (A-90-19: IV-F-7.43 and IV-D-117) claimed that lack of maintenance occurs with cooling towers. The commenter (A-90-19: IV-F-7.43 and IV-D-117) suggested requiring the installation of continuous TOC monitoring devices on all cooling water equipment in HAP service. The commenter (A-90-19: IV-F-7.43 and IV-D-117) further suggested that if the TOC reading of the cooling water reaches 15 ppm or greater, then a sample of the cooling water should be submitted for analysis. The commenter (A-90-19: IV-F-7.43 and IV-D-117) suggested that if TOC levels of 20 ppm and above are reached, the piece of equipment should be taken out of service and repaired as soon as possible. The commenter (A-90-19: IV-D-117) suggested that a reading of 15 ppm or greater should trigger periodic sampling of cooling tower stacks.

Response: Monitoring of cooling tower influent and effluent concentrations to detect leaks in a heat exchange system is required monthly for the first 6 months and quarterly thereafter. A leak in a heat exchange system is defined as a difference in concentration of 1 ppm at a 95 percent confidence level. The EPA has written these requirements to prevent large emissions of HAP's and other VOC's from occurring at the cooling tower. Lack of maintenance will not occur with cooling towers, because if a leak is detected, it must be repaired no later than 45 days after it is detected. If the leak cannot be repaired without process unit shutdown, the facility is required to shut the process down, unless the owner or operator can demonstrate that a shutdown will cause more emissions than the leak. The facility also has the option to isolate the leaking process equipment from HAP service until it is repaired.

Installations of continuous TOC monitoring devices would be prohibitively expensive to install on all cooling water equipment in HAP service, which would include every heat exchanger. Furthermore, a reading of 15 or 20 ppm on a piece of cooling water equipment does not indicate emissions from a cooling tower. Emissions from a cooling tower are indicated by a concentration differential across the cooling tower. For example, if the influent and effluent concentrations of a cooling tower are both 15 ppm, there are no emissions occurring from the cooling tower. However, an influent concentration of 15 ppm and an effluent concentration of 10 ppm indicate that emissions are occurring from a cooling tower. Therefore, monitoring the influent and effluent of a cooling tower is sufficient to determine when leaks are occurring.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-53; IV-D-112) supported §63.102(b)(4) which exempts from monitoring non-contact cooling water systems which operate at water pressures exceeding process fluid pressures.

Response: Non-contact heat exchange systems which operate at water pressures exceeding process fluid pressures were exempted from monitoring requirements because any leaks would occur into the process fluid and not into the cooling water.

6.12.5.2 Once-Through Cooling Water

Comment: One commenter (A-90-19: IV-D-73) argued that monitoring should only be required for recirculating cooling water systems that are open to the atmosphere. Another commenter (A-90-19: IV-D-34) suggested that requirements for control of "once-through" cooling water systems should be deleted. One commenter (A-90-19: IV-D-53) urged the EPA to exempt once-through cooling water systems from the HON. One commenter (A-90-19: IV-D-34) stated that once-through cooling water is currently regulated under CWA regulations and the air emissions are insignificant because the potential for HAP's to enter the water is low and the driving force for volatilization is very small. Several commenters (A-90-19: IV-D-36; IV-D-53; IV-D-54; IV-D-73) (A-90-23: IV-D-20) claimed that once-through cooling water systems are already subject to NPDES wastewater discharge permit monitoring requirements and should therefore not be subject to the HON.

One commenter (A-90-19: IV-D-34) provided data from several NPDES permits, which document allowable discharge limits ranging from 4 ppm with continuous monitoring in place to 0.75 ppm with cooling water leak detection and repair as part of best management practices.

Response: Once-through cooling water systems with effluent discharge limits of less than 1 ppm are no longer subject to the HON monitoring requirements for heat exchange systems. A leak in a heat exchange system is defined as a 1 ppm differential in concentration across the heat exchange system at a 95 percent confidence level. When a heat exchanger in a once-through cooling water system is leaking, the effluent concentration will be higher than the influent concentration. Therefore, an effluent concentration limit of less than 1 ppm guarantees that the variation in concentration across a once-through heat exchange system is less than 1 ppm if a heat exchanger is leaking. For once-through cooling water systems with effluent discharge limits greater than or equal to 1 ppm, it is impossible to guarantee that the variation across the system is less than 1 ppm unless the influent concentration is monitored. Therefore, once-through cooling water systems with effluent discharge limits greater than or equal to 1 ppm are not exempt from the HON monitoring requirements for heat exchange systems.

7.0 RECORDKEEPING AND REPORTING

Comment: Two commenters (A-90-19: IV-D-70; IV-D-99) requested that the Administrator be notified when a heat exchanger is leaking, and the Administrator should have the option to require a unit shutdown and repair before the next scheduled shutdown. One commenter (A-90-19: IV-D-70) provided a copy of text from an air permit which details appropriate action levels and time required for repairs when cooling towers are emitting butadiene.

Response: The heat exchange system provisions in subpart F have been amended such that an owner or operator can no longer invoke delay of repair for a leaking heat exchange system if the repair is technically infeasible without a process unit shutdown as previously stated in §63.102(b)(3)(i) of subpart F of the proposed rule. In the final rule, a process unit shutdown is required to repair a leak in a heat exchange system, unless the owner or operator can demonstrate that a process unit shutdown would cause greater emissions than the emissions from the leaking heat exchange system until the next planned shutdown. The EPA has determined that significant emissions can occur from a leaking heat exchange system between planned process unit shutdowns and has determined that process unit shutdown is the appropriate "action level" and time required for repairs (Memorandum from Kristine Pelt, Radian, to Mary Tom Kissell, EPA/SDB, "Leaks from a Heat Exchange System," November 23, 1993.).

Comment: One commenter (A-90-19: IV-D-32) stated that the recordkeeping and reporting requirements for wastewater subject to the HON should not be required for RCRA-permitted treatment units because RCRA already specifies sufficient monitoring, reporting, and recordkeeping.

Response: The EPA recognizes that recordkeeping and reporting overlap exists between the HON and RCRA for RCRA-permitted treatment units. In the final rule, the EPA has addressed this issue by incorporating in §63.110(e)(2)(ii) of subpart G an option for case-by-case determination of requirements. This option allows owners or operators to work with the Administrator to minimize any duplicative testing, monitoring, recordkeeping, and reporting requirements.

Comment: One commenter (A-90-23: IV-D-20) stated that the information required to document operating conditions during the compliance test should be restricted to treatment process information and should not include all process information. The commenter (A-90-23: IV-D-20) stated that §63.145(a)(4) should be altered to reflect such changes.

Response: The provisions in §63.145(a)(4) of subpart G do not require an owner or operator to document all process information. Rather, §63.145(a)(4) requires that an owner or operator shall record all process information that is necessary to document operating conditions during the test.

Comment: One commenter (A-90-19: IV-D-33) stated that the EPA should explain why the recordkeeping requirements in §63.102(b)(1) are necessary and what degree of detail is required. The commenter (A-90-19: IV-D-33) stated that only a brief explanation was included in the proposal preamble (57 FR 62614). The commenter (A-90-19: IV-D-33) stated that other regulations (e.g., NPDES and pretreatment requirements) currently require paperwork for maintenance-related wastewater, and thus, §63.102(b)(1) is not necessary and should be deleted.

Response: The recordkeeping requirements for maintenance wastewater have been moved from §63.102(b)(1) of subpart F of the proposed rule to §63.105 of subpart F, entitled maintenance wastewater requirements in the final rule. The recordkeeping requirements for routine maintenance and maintenance-turnaround wastewater are the same and these requirements will help ensure that procedures will be followed to properly manage maintenance wastewater and control HAP emission from maintenance wastewater to the atmosphere. The level of detail for the recordkeeping requirements is not specified in the rule in order to provide flexibility. However, the owner or operator must provide a description of maintenance activities which meets the requirements specified in §63.105(b) of the final rule. The recordkeeping requirements for NPDES and pretreatment permits are not sufficient for compliance with the recordkeeping requirements for maintenance wastewater regulated by the HON. These types of permits only regulate the amount of organic material present in the wastewater when it is discharged from the facility. The maintenance requirements of the HON are written to ensure the proper management of maintenance wastewater and the control of HAP emissions to the atmosphere from maintenance wastewater.

Comment: One commenter (A-90-19: IV-D-33) stated that the reporting requirements of §63.146 require submittal of more information than is necessary to demonstrate compliance. The commenter (A-90-19: IV-D-33) indicated that table 14a in §63.146(a)(1) and table 14b in §63.146(a)(2) require almost identical information for new facilities. The commenter (A-90-19: IV-D-33) recommended that §63.146(a) be simplified by eliminating subparagraph (a)(1) and table 14a, re-numbering table 14b as 14, and re-numbering the subparagraphs. The commenter (A-90-19: IV-D-33) contended that the same problem arises with tables 15a and 15b in §63.146(b) and suggested the same solution for deleting the redundancy.

Response: The commenter (A-90-19: IV-D-33) has misinterpreted the reporting requirements for the Implementation Plan and the Notification of Compliance Status as listed in §63.146 of subpart G. The EPA did not intend for identical information to be listed in tables 14a and 14b or in tables 15a and 15b for new sources. The information in tables 14a and 15a is to be submitted for table 8 compounds at new sources. The information in tables 14b and 15b is to be submitted for table 9 compounds at new sources or for table 9 compounds at existing sources. The titles of tables 14a, 14b, 15a, and 15b and the text in §63.146 of subpart G have been revised to clarify these reporting requirements.

Comment: One commenter (A-90-19: IV-D-33) suggested that if an existing source, which elected to comply with the process unit alternative of §63.138(d), completed table 16 in §63.146(b)(3), then the facility should not also need to complete table 15.

Response: The EPA agrees with the commenter (A-90-19: IV-D-33). The provisions in §63.146(b)(3) of subpart G have been clarified and state that if an owner or operator completes table 16, then table 15b need not be completed. Table 15a applies only to table 8 compounds for new sources.

Comment: One commenter (A-90-19: IV-D-38) alleged that the Administrative Authority should have the ability to approve alternative heat exchanger and maintenance plans subject to subparts G and H without having to publish notice in the Federal Register.

Response: The EPA assumes that the commenter (A-90-19: IV-D-38) is referring to the provisions in §63.102(c) of subpart F in the proposed rule. These provisions stated that the Director of the EPA's Office of Air Quality Planning and Standards would determine when an alternative means of compliance with subparts G or H is permitted and would publish a notice to that effect in the Federal Register. The EPA would like to point out that this authority rests with the Administrator; thus the proposed rule contained an error. Since the heat exchange system and maintenance wastewater requirements are in subpart F, the provisions from §63.102(c) of the proposed rule do not apply. In the final rule, the general standards, heat exchange system, and maintenance wastewater requirements have been moved to separate sections in subpart F for clarity.

8.0 WORDING OF THE PROVISIONS

Comment: One commenter (A-90-19: IV-D-34) stated that the units for both MR and RMR in §63.145 must be the same in order to compare the values.

Response: The EPA has revised the equations and the wording of the provisions at §63.145(g) and (h), so that the units for required mass removal (RMR) and actual mass removal (MR) are consistent.

Comment: One commenter (A-90-19: IV-D-77) stated that the EPA should correct §63.133(f)(2) of the proposed rule, which addresses control equipment failures for wastewater tanks, because the section incorrectly references §§63.133(e)(2)(i)-(viii) when it should reference §63.133(f)(2)(i)-(ix).

One commenter (A-90-19: IV-D-73) pointed out that the preamble incorrectly references table 9 HAP's in §63.138 when the table is actually in §63.131.

One commenter (A-90-19: IV-D-33) stated that the reference in §63.133(a) should be changed from "(c)" to "(b)."

One commenter (A-90-19: IV-D-87) noted that §63.138(d)(l)(i) is referenced in §63.145(b)(l) and that this section does not exist.

One commenter (A-90-19: IV-D-85) stated that §63.112(c)(1)(ii) should not refer to §63.132(d)(4) but should refer to §63.138(d)(4). The commenter (A-90-19: IV-D-85) pointed out that the way the proposed provisions were written, sources are exempted from installing the RCT if they meet certain monitoring and recordkeeping requirements.

Response: The EPA agrees with the commenters that the references were incorrect in the proposed rule. The references in the final rule have been corrected. However, some paragraphs have been renumbered in the final rule, and, therefore, the cross-references may have changed.

Comment: One commenter (A-90-19: IV-D-73) suggested deleting the third sentence in the definition of individual drain system, because the sentence presents a design requirement.

Response: The commenter is correct, and this change has been incorporated.

Comment: One commenter (A-90-19: IV-D-64) stated that in proposed §63.138(g)(3), the 99 percent destruction should be of total VOHAP, rather than HAP.

Response: The wastewater provisions in §63.138(g)(3) of the proposed rule are found in §63.138(h)(3) of the final rule. The EPA disagrees with the commenter (A-90-19: IV-D-64) that the provisions in §63.138(h)(3) should refer to 99 percent destruction of VOHAP. These provisions refer to a 99 percent destruction of the total HAP mass flow rate. When referring to the mass flow rate, the EPA refers to HAP. The term "VOHAP" is used when referring to the concentration used to determine applicability and the concentration used for enforcement.

Comment: One commenter (A-90-19: IV-D-64) stated that "enclosed combustion device" is an undefined term.

Response: The EPA is not adding a definition of "unenclosed combustion device" to the final rule because the only type of combustion device that is not specifically enclosed is a flare. In the final rule, requirements for operating flares associated with the control of HAP emissions from wastewater are located in §63.139 of subpart G.

Comment: One commenter (A-90-23: IV-D-20) stated that the units (i.e., kg/yr and kg/hr) in §63.145(h) and (i) should be expressed consistently in kg/hr.

Response: The EPA agrees with the commenter (A-90-19: IV-D-20) that the units in §§63.145(h) and (i) should be expressed consistently. Therefore, the mass flow rate units in §§63.145(h) and (i) have been changed and are all expressed as kg/hr.

Comment: One commenter (A-90-19: IV-D-33) stated that the "and" after §63.132(d)(2) should be moved to after §63.132(d)(4).

Response: The EPA agrees with the commenter (A-90-19: IV-D-33) and the "and" after §63.132(d)(2) of the final rule has been removed. However, an "and" was not placed after §63.132(d)(4) of the final rule because paragraphs (1) through (5) in §63.132(d) of the final rule are all independent sentences.

Comment: One commenter (A-90-19: IV-D-33) stated that the definition of "recovery device" appears in both §63.101 and §63.111 and should be moved from §63.101, which has a more concise definition, to §63.111, which would eliminate the need for the definition in §63.101.

Response: The definition of "recovery device" has been made consistent in §63.101 of subpart F and §63.111 of subpart G. However, the EPA has decided to leave the definition in §63.101 of subpart F and §63.111 of subpart G, because the term is used frequently in both subparts and is referred to by other definitions in both subparts.

Comment: One commenter (A-90-19: IV-D-33) stated that the definitions of "closed-vent system," "control device," "process unit," and "process unit shutdown" should remain in both §63.111 and §63.161, but the definitions should be made consistent or the same, if possible.

Response: The EPA agrees with the commenter (A-90-19: IV-D-33) that the definitions of "closed-vent system", "control device", "process unit", and "process unit shutdown" should remain in both §63.111 of subpart G and §63.161 of subpart H. The definitions have been made consistent when possible.

Comment: One commenter (A-90-19: IV-D-33) stated that English units should be placed in parentheses after the metric units throughout the HON in order to avoid confusion in converting metric units to English units and to be consistent with the preamble.

Response: The regulation specifies only metric units, because the EPA enforces standards based on the metric system. Previous NESHAP and NSPS are based on metric units. Adding English units would create confusion about which value is enforceable due to rounding differences between the two values.

Comment: One commenter (A-90-19: IV-D-33) stated that the EPA should add "regulated" prior to "wastewater streams" in §§63.131(a)(5), (a)(6), and (a)(7).

Response: The EPA disagrees with the commenter (A-90-19: IV-D-33) that the word "regulated" should be added prior to the words "wastewater streams" in §63.131(g), (h), and (i) in the final rule. These paragraphs refer to figures 5, 6, and 7 which show the control options for those wastewater streams subject to the control requirements of the wastewater provisions of the HON. These control options include treatment of Group 1 wastewater streams, a combination of Group 1 and Group 2 wastewater streams, or treatment of all Group 1 and Group 2 wastewater streams (as required by the process unit alternative illustrated in figure 8). Control of wastewater streams is required only if Group 1 wastewater streams are present at the facility. However, Group 2 wastewater streams are also "regulated" by the wastewater provisions of the HON, although they do not require control. The EPA is concerned that the change suggested by the commenter could cause confusion if the term "regulated" were misinterpreted to mean only Group 1 wastewater streams.

Comment: One commenter (A-90-19: IV-D-33) stated that the definition of oil-water separator or organic-water separator needs the word "equipment" added to the end.

Response: The EPA agrees with the commenter (A-90-19: IV-D-33), and the word "equipment" has been added to the end of the definition of oil-water separator.

Comment: Two commenters (A-90-19: IV-G-10) (A-90-23: IV-G-5) suggested that the EPA clarify the definition of wastewater in figure 2 of §63.131 by moving the term "flow rate < 0.02 liter per minute" to the decision box containing the term "<5 ppmw."

Response: The term "flow rate <0.02 liter per minute" cannot be moved to the decision box containing the term "<5 ppmw" without changing the meaning of the flow diagram and the applicability criterion. If the term "flow rate <0.02 liter per minute" is moved from the decision box containing the term "concentration < 10,000 ppmw," wastewater streams will be exempt from the HON wastewater provisions simply by having a concentration less than 10,000 ppmw. Wastewater streams having concentrations between 5 and 10,000 ppm are only exempt from the HON wastewater provisions if their flow rate is less than 0.02 ℓpm. All wastewater streams with concentrations less than 5 ppmw are exempt from the HON wastewater provisions.

1.0 INTRODUCTION

On December 31, 1992, the U.S. Environmental Protection Agency (EPA) proposed the Hazardous Organic National Emission Standard for Hazardous Air Pollutants (NESHAP) for process units in the synthetic organic chemical manufacturing industry (SOCMI) under section 112(d) of the Clean Air Act (57 FR 62608). Public comments were requested on the proposed standard and comment letters were received from industry representatives, governmental entities, environmental groups, and private citizens. Two public meetings were held, one in Research Triangle Park (RTP), North Carolina, on February 25, 1993, and another in Baton Rouge, Louisiana, on March 18, 1993. Both hearings were open to the public and 5 persons in RTP and 45 persons in Baton Rouge presented oral testimony on the proposed NESHAP.

On August 11, 1993, the General Provisions for part 63 (58 FR 42760) were proposed. In order to allow the public to comment on how the General Provisions relate to the Hazardous Organic NESHAP (HON), a supplemental notice (October 15, 1993; 58 FR 53478) was published. Public comments were requested on the overlap between the General Provisions and the HON and on some specific emissions averaging issues. Comment letters regarding the supplemental notice were received from 80 commenters.

The written comments that were submitted and verbal comments made at the public hearing regarding the policy and technical issues associated with emissions averaging in the proposed rule and supplemental notice, along with responses to these comments, are summarized in the following chapter. In Chapter 2.0, the EPA first addresses the issue of cost in emissions averaging, including cost savings and the cost effectiveness of averaging, the legality of allowing emissions averaging, and the rationale for establishing the scope of the averaging program. Then, the EPA responds to comments on whether a broader scope of emissions averaging can or should be allowed and discusses how emissions averaging credits are generated, why credit is not allowed in certain situations, and why a credit discount factor was included in the final rule. The chapter continues with the EPA's discussion of the design and selection of the averaging compliance period, how the averaging program is to be implemented and enforced, and the inclusion of risk considerations in emissions averaging. Lastly, the EPA explains why banking was excluded from the final averaging program and addresses general policy and miscellaneous issues. The summary of comments and responses serves as the basis for the revisions made to the NESHAP between proposal and promulgation.

2.0 EMISSIONS AVERAGING

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-48; IV-D-50; IV-D-55; IV-D-56; IV-D-57; IV-D-58; IV-D-59; IV-D-62; IV-D-63; IV-D-67; IV-D-69; IV-D-71; IV-D-72; IV-D-73; IV-D-74; IV-D-75; IV-D-77; IV-D-79; IV-D-80; IV-D-81; IV-D-82; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-86; IV-D-92; IV-D-97; IV-D-98; IV-D-104; IV-D-106; IV-D-108; IV-D-112; IV-D-113; IV-F-1.1 and IV-F-3; IV-F-1.6 and IV-F-6; IV-F-7.41; IV-G-1; IV-G-16; IV-G-17) supported the EPA's proposal to allow the use of emissions averaging to comply with subpart G. Some of the reasons listed by commenters include: emissions averaging will reduce compliance costs and improve cost effectiveness; it will encourage pollution prevention and the development of innovative control technologies; and it is consistent with the express requirement in section 112 of the Act to consider cost in developing MACT standards.

Several commenters (A-90-19: IV-D-9; IV-D-10; IV-D-11; IV-D-41; IV-D-45 and IV-F-7.7; IV-D-49; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6 and IV-G-8; IV-D-90; IV-D-93; IV-D-96; IV-D-99; IV-D-100; IV-D-103 and IV-F-7.5; IV-D-103 and IV-F-7.40; IV-D-115; IV-D-117 and IV-F-7.43; IV-D-118; IV-D-120; IV-D-122; IV-D-123; IV-D-124; IV-D-125; IV-F-1.5; IV-F-7.1; IV-F-7.2; IV-F-7.6; IV-F-7.21; IV-F-7.23; IV-F-7.26; IV-F-7.33; IV-F-7.34; IV-F-7.35; IV-F-7.36; IV-F-7.42; IV-F-7.44; IV-F-7.45) opposed the EPA's proposal to allow the use of emissions averaging to comply with subpart G or were opposed to specific features of emissions averaging. Some of the reasons listed by commenters include: emissions averaging could increase risks to health and the environment; it will result in emission reductions less than the maximum achievable, hence, it is inconsistent with section 112 of the Act; and it raises enforcement concerns.

One commenter (A-90-19: IV-D-70) was concerned that emissions averaging would: (1) create a needless third level of regulatory issues; (2) be a source of problematic questions which would slow down and undermine air pollution control efforts; and (3) require needless continuing policy and procedure development. The commenter (A-90-19: IV-D-70) stated that if the driving force for the emissions averaging program is a concern that the MACT standards as proposed may not be economically reasonable or appropriate for certain source types, then these issues should be resolved in the standard itself by specific exemptions or cutoff levels.

Two commenters (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12; IV-F-1.5) suggested that even without emissions averaging, the rule would provide reasonable flexibility for sources that want to use alternative emissions reduction techniques, but at the same time would ensure that real reductions do occur.

Response: Emissions averaging has been maintained in the final rule as an option for sources to use to comply with subpart G of the rule. This decision is in keeping with the EPA's general policy of encouraging the use of flexible compliance approaches where they can be properly monitored and enforced. Under particular circumstances, emissions averaging can provide sources the flexibility to comply in the least costly manner while still maintaining a regulation that is workable and enforceable. The EPA's goal in crafting the emissions averaging provisions in the final rule has been to make emissions averaging available to sources faced with some emission points that are particularly difficult or costly to control. At the same time, the EPA has simplified and streamlined the emissions averaging provisions in order to ease the enforcement burden on implementing agencies.

The rationale for the specific provisions of the emissions averaging policy is detailed throughout this BID volume. In general, the basic structure of the HON emissions averaging policy remains much the same as at proposal. Fundamental elements such as the credit/debit system, kinds of emission points allowed in averages, reference control efficiency provisions, provisions for approval of new devices, and an annual compliance period remain unchanged.

However, some provisions have been altered or added in order to sharpen the focus of emissions averaging, ease implementation and administration, and ensure at least the same air quality benefit as point-by-point compliance. For example, the number of emission points that can be included in an average has been limited; banking of credits has been disallowed; actions taken prior to November 15, 1990 will not be credited; averaging will not be allowed at new sources; and a discount factor of 10 percent will be applied to credits generated by control other than pollution prevention measures. In addition, sources must demonstrate, to the implementing agency's satisfaction, that a proposed averaging plan will not cause an increase in risk or hazard relative to point-by-point controls. All of these changes are discussed in greater detail throughout this BID volume.

2.1 COST

Comment: Several commenters (A-90-19: IV-D-33; IV-D-48; IV-D-55; IV-D-58; IV-D-59; IV-D-62; IV-D-67; IV-D-72; IV-D-73; IV-D-74; IV-D-77; IV-D-83; IV-D-86; IV-D-98; IV-D-106; IV-D-108; IV-D-112; IV-D-113; IV-G-1; IV-G-16; IV-G-17) asserted that emissions averaging will allow sources to achieve the mandated reductions more cost-effectively.

One commenter (A-90-19: IV-D-83 and IV-F-1.3 and IV-F-5) predicted that emissions averaging will encourage the greatest reductions as early as possible at significantly reduced costs. Two commenters (A-90-19: IV-D-83 and IV-F-1.3 and IV-F-5; IV-G-1) added that emissions averaging will provide an additional incentive for sources to develop innovative control technologies. Two commenters (A-90-19: IV-G-16; IV-G-17) provided examples of where highly controlled emission points fall short of meeting MACT, but through emissions averaging, can still achieve the required reductions in the most cost-effective manner.

Nine commenters (A-90-19: IV-D-32; IV-D-33; IV-D-48; IV-D-73; IV-D-83; IV-D-104; IV-D-112; IV-F-1.6 and IV-F-6; IV-F-7.41) promoted emissions averaging for the instances where MACT requirements will be "exceptionally high" for some emission points or sources, and therefore not cost effective, or where emissions averaging is the only "reasonable means" of achieving compliance. One commenter (A-90-19: IV-D-83) noted that the EPA draft RIA finds that HON compliance costs vary widely from source to source, and in some ". . . cases, cost increases can be in excess of 100 percent of market price."

Three commenters (A-90-19: IV-D-33; IV-D-58; IV-F-1.6 and IV-F-6) maintained that emissions averaging may assist facilities having unusually high MACT costs to improve cost effectiveness and maintain a competitive edge relative to other facilities. One commenter (A-90-19: IV-D-33) promoted the advantage of maintaining competitiveness particularly for facilities whose products are sold in the worldwide marketplace.

Response: The primary reason for allowing emissions averaging as an alternative to point-by-point compliance with RCT is that emission reductions equal to or greater than under point-by-point compliance can still be achieved. At the same time, emissions averaging can provide sources the flexibility to comply in the least costly manner. As long as equivalent reductions can be achieved, the EPA considers it appropriate to increase regulatory flexibility.

Although the EPA appreciates the sentiments expressed regarding cost savings, the EPA disagrees with the implications that emissions averaging may be the only "reasonable means" of achieving compliance. It is not anticipated that emissions averaging would be the only reasonable means of achieving compliance in any case. Even though some owners or operators will realize significant cost savings through emissions averaging, there is sufficient flexibility provided in the point-by-point RCT compliance requirements that it will always be a reasonable strategy for achieving reductions.

The draft RIA does contain the finding that compliance costs can vary widely among manufacturers. However, as emphasized throughout the draft RIA and other supporting documents, compliance cost estimates were provided for the TIC option. Under TIC, it is assumed that all emission points are controlled without exclusions, and moreover, all emission points are controlled individually, not ducted to common control devices. Therefore, the wide variations in compliance cost, especially those resulting in price increases in excess of 100 percent of market price, represent a worst-case level of variation. In reality, many emission points will be classified as Group 2 points not requiring control, and the total cost of control at most, if not all, facilities will be less than predicted in the draft RIA.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-86) anticipated that the use of emissions averaging will be limited to a few circumstances such as where use of RCT is impracticable. One of the commenters (A-90-19: IV-D-32) predicted that emissions averaging will be used primarily where, due to special circumstances associated with a particular Group 1 point, the cost of RCT for that point is much in excess of the average relied upon by the EPA in selecting that RCT. The commenter (A-90-19: IV-D-32) predicted that emissions averaging will not enable the industry to save money in comparison to the EPA's projected costs for RCT. The other commenter (A-90-19: IV-D-86) suggested that emissions averaging may have an insignificant impact on the overall economic impact of the rule.

Response: As indicated previously, the EPA does not anticipate that emissions averaging would be the only reasonable means of achieving compliance for any case. Neither commenter provided information on how likely it might be that installing RCT would be impracticable. However, emissions averaging was included in the rule to allow owners or operators the flexibility to make such a determination on a site-specific basis.

The EPA agrees with the commenters that emissions averaging may be desirable for only a limited number of emission points in any source and in fact, stated as much in the proposal preamble. However, even though emissions averaging may be used for only a small number of points, it should still enable the industry to save money in comparison to projected costs for RCT. Emissions averaging may not enable sources to reduce their costs to or below the industry average; nevertheless, sources will incur lower costs than they would if point-by-point compliance were the only option available. Otherwise, the source would be unwise to choose emissions averaging.

The result of lowering control costs for some emission points will be that the national average cost will be reduced. The range of compliance costs experienced throughout the industry will be reduced as well. The EPA cannot specifically address the claim that cost reductions will be insignificant because there is not sufficient data to make a specific estimate of the extent to which emissions averaging will be used. However, judging from the extensive comment supporting the use of emissions averaging, the EPA anticipates that industry will find ample opportunity for realizing more than insignificant cost savings.

2.2 LEGALITY OF EMISSIONS AVERAGING

Comment: Several commenters (A-90-19: IV-D-32; IV-D-48; IV-D-57; IV-D-62; IV-D-72; IV-D-74; IV-D-75; IV-D-77; IV-D-79; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-86; IV-D-98; IV-D-104; IV-D-106; IV-D-108) considered emissions averaging to be consistent with section 112(d) of the Act. One commenter (A-90-19: IV-D-104) also considered emissions averaging to be consistent with section 112(i) of the Act. Another commenter (A-90-19: IV-D-75) suggested that emissions averaging is further supported by the statute in sections 112(h) and (j).

One commenter (A-90-19: IV-D-62) repeated the statement in the proposal preamble that the EPA is not prohibited from allowing a source to meet MACT through use of emissions averaging as long as every source in the category must comply and the standard is at least as stringent as the MACT floor.

Seven commenters (A-90-19: IV-D-48; IV-D-62; IV-D-74; IV-D-77; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-98; IV-D-108) reiterated that section 112(d) expressly requires cost to be considered in setting the MACT standard. Hence, two commenters (A-90-19: IV-D-98; IV-D-83 and IV-F-1.3 and IV-F-5) reasoned that because emissions averaging is a cost-effective way of achieving the reductions required by the standard, it is consistent with section 112(d).

Four commenters (A-90-19: IV-D-32; IV-D-57; IV-D-62; IV-D-77) listed other factors that the Act requires be considered in defining MACT such as non-air quality environmental impacts and energy impacts. The commenters (A-90-19: IV-D-32; IV-D-57; IV-D-62; IV-D-77) suggested that because emissions averaging allows sources to take these factors into account on an emission point-specific basis, emissions averaging allows MACT to be fine-tuned and implemented more completely. Two commenters (A-90-19: IV-D-32; IV-D-57) referenced section 112(d)(2) and Senate Report (S.Rep) No. 228, 101st Cong., 1st Sess. 167 (1989).

Two commenters (A-90-19: IV-D-48; IV-D-83 and IV-F-1.3 and IV-F-5) further justified the use of emissions averaging based on the direction to the EPA from Congress to implement, whenever possible, market-based regulatory schemes for achieving emissions reductions.

Four commenters (A-90-19: IV-D-32; IV-D-57; IV-D-74; IV-D-106) interpreted the statute, specifically section 112(h), as requiring the EPA to promulgate a numerical emissions limit as MACT where feasible rather than design, equipment, work practice, or operational standards, leaving it to individual sources to meet that limit. Another commenter (A-90-19: IV-D-98) found the same conclusion in Adamo Wrecking v. United (1978) where section 112(d)(2) was interpreted to mean that the EPA is authorized to establish numerical limitations on air emissions to be achieved through the application of any control technology. One commenter (A-90-19: IV-D-32) reasoned that although the proposed HON specifies control requirements, because it allows sources to achieve equivalent reductions through emissions averaging, it is fully harmonious with section 112(h).

One commenter (A-90-19: IV-D-83) countered arguments that emissions averaging would result in greater emissions. The commenter (A-90-19: IV-D-83) pointed out that the averaging provisions require sources to submit for approval an Implementation Plan that demonstrates no net increase in HAP emissions and that detailed monitoring is required. The commenter (A-90-19: IV-D-83) therefore concluded that the HAP reductions achieved under emissions averaging will be at least as great as the total emissions reductions required on a point-by-point basis. The commenter (A-90-19: IV-D-83) argued that these emission reductions will translate into substantial improvements in local air quality with or without emissions averaging.

Two commenters (A-90-19: IV-D-92; IV-D-113) considered emissions averaging to be neutral so that the total emissions are no greater than what would be achieved with strict application of the RCT.

In contrast, four commenters (A-90-19: IV-D-41; IV-D-45 and IV-F-7.7; IV-D-85 and IV-F-7.39 and IV-F-12; IV-F-7.43) claimed that the proposed averaging scheme violates the law.

One commenter (A-90-19: IV-D-41) stated that the Act does not promote emissions averaging. Another commenter (A-90-19: IV-D-45) stated that although Congress instructed the EPA to consider cost when evaluating MACT, they did not intend to let polluters avoid control of point sources in favor of a "bubble."

Three commenters (A-90-19: IV-D-45 and IV-F-7.7; IV-D-70; IV-F-7.43) asserted that emissions averaging is not a permissible application of MACT. One commenter (A-90-19: IV-D-117) claimed that emissions averaging weakens the HON, which is a violation of the MACT standard. Three commenters (A-90-19: IV-D-85; IV-D-87; IV-D-96) contended that because of emissions averaging, the rule fails to achieve "maximum achievable emissions reductions" as required under section 112(d)(2) of the Act. Two commenters (A-90-19: IV-D-90; IV-D-100) stated that it does not result in continuous emission reductions achievable under MACT standards.

Two commenters (A-90-19: IV-D-90; IV-D-100) disagreed that the EPA has statutory authority to allow emissions averaging to comply with MACT. The commenters (A-90-19: IV-D-90; IV-D-100) reasoned that because Congress specified the use of "offsets" in lieu of control technology requirements for significant modifications in section 112(g) and did not make any similar references in section 112(d), it is unlikely that they intended to provide emissions averaging as a compliance option for MACT standards. The commenters (A-90-19: IV-D-90; IV-D-100) also disagreed with the reasoning stated in the proposal preamble that emissions averaging is allowed as long as every source "is required to comply, averaging does not cross source boundaries, and the standards are at least as stringent as the floor."

Ten commenters (A-90-19: IV-D-49; IV-D-51; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-93; IV-D-96; IV-D-99; IV-D-115; IV-D-117 and IV-F-7.43; IV-F-1.5) doubted that an emissions averaging system could actually achieve the same level of emission reductions as a regulation based on RCT's without emissions averaging. One commenter (A-90-19: IV-D-103) contended that the rule fails to explain how averaging will provide greater reductions than other programs, such as traditional permit programs. The commenter (A-90-19: IV-D-103) claimed that emissions averaging increases emissions and an increase in emissions of a toxic chemical is a clear violation of the intent of the law, and an increase without adequate demonstration of any floor is contrary to requirements under the law.

Response: The EPA has thoroughly reviewed all of the comments received concerning the legality of averaging and has concluded that emissions averaging is legally permissible under section 112 of the Act. Thus, the EPA agrees with the conclusions of those commenters who contended that averaging is permissible under the Act and disagrees with those who contended that averaging was not permissible under section 112.

Section 112(d) requires standards to be established for each category or subcategory of sources listed under section 112(c). Such standards shall then be applicable to sources within those categories or subcategories. The statute does not define source category, nor does it impose precise limits on the Administrator's discretion to define source. In this case, the Administrator has exercised that discretion to define source so as to include all emission points related to SOCMI production at a facility.

In setting the standard for a category or subcategory, the Administrator is required to determine a floor for the entire category or subcategory, and then set a standard applicable to each source within that category that is at least as stringent as the floor and requires the maximum achievable emission reductions considering certain other factors. In determining whether the standard should be more stringent than the floor and by how much, the Administrator is to consider, among other factors, the cost of achieving the additional emission reductions. The Act does not limit how the standard is to be set beyond requiring that it be applicable to all sources in a category, be written as a numerical limit wherever feasible, and be at least as stringent as the floor. Therefore, the relevant statutory language is broad enough to permit the Administrator to exercise discretion to allow sources to meet MACT through the use of emissions averaging provided the standard applies to every source in the category, averaging does not cross source boundaries, and the standard is no less stringent than the floor.

The averaging system established by this rule stays within those legal parameters. The source has been defined to include all SOCMI processes within a major source, and a standard has been written to apply to all sources in the category as provided by sections 112(d)(1) and (2) of the Act. This standard is no less stringent than the floor for the category, calculated in accordance with section 112(d)(3), and takes cost and other relevant factors into consideration. The standard applies only to sources in the category, applies to all such sources, and is written as a numerical limit where feasible. Moreover, averaging can only be conducted within the confines of each individual source, thus ensuring that the standard, as applied to each source, is no less stringent than the floor. In addition, a credit discount factor is applied when averaging is used, which further ensures that averaging will be at least as stringent as the rule without averaging. Specific discussion of the discount factor is included in section 2.6 of this BID volume.

The averaging system adopted in this rule will not result in greater emissions of HAP's than the rule without averaging, although the precise composition of the HAP's emitted from a source may differ from that which would occur without averaging. However, the provisions in the final rule regarding a demonstration to the implementing agency that risk will not be higher with averaging than without averaging will ensure that the use of averaging does not increase risk. Thus, the averaging system established by this rule will result in neither greater emissions of HAP's nor an increase in risk when compared with compliance without averaging. Moreover, because averaging is not permitted between sources or facilities (as discussed in section 2.4 of this BID volume), emissions cannot be increased at one source or facility as a consequence of reductions at another source or facility. The EPA maintains that an averaging program such as the one established by this rule is fully consistent with the Act.

2.3 SCOPE

2.3.1 Source Definition

Comment: Three commenters (A-90-19: IV-D-45 and IV-F-7.7; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-9) argued that the source definition picked to justify emissions averaging violates the Act and is inappropriate as a matter of policy, and urged the EPA to define the source as the emitting unit for purposes of the HON rule.

One commenter (A-90-19: IV-D-85 and IV-G-9) stated that the source definition in the rule conflicts with statutory language, past practice under section 112, and the legislative history of the 1990 Amendments, and presented an extensive discussion of their interpretation of the definition of source. The commenter stated that section 112(d)(2) requires emissions standards for each "new or existing source," and sections 112(a)(4) and (10) define the terms "new source" and "existing source" by reference to the term "stationary source." The commenter noted that section 112(a)(3) states: "The term 'stationary source' shall have the same meaning as such term has <u>under</u> section 111(a)." [Emphasis added.] The commenter reasoned that the term "stationary source" as applied to the SOCMI under section 111 means emission unit, rather than an entire plant or a collection of points associated with certain kinds of processes.

The commenter stated that the meaning of the term "stationary source" under section 111 is based on the judicial construction in <u>Asarco, Inc. v. EPA</u>, 578 F.2d 319 (D.C. Cir. 1978), and maintained that <u>Asarco</u> rejected "bubbles." The commenter stated that the EPA explained a few months prior to passage of the 1990 amendments to the Act that the main purpose of section 111 is to apply Best Demonstrated Technology (BDT) to all new, modified, or reconstructed sources, and that because of this, a much narrower stationary source definition has applied to equipment within the SOCMI under the NSPS program. The commenter added that the legislative history confirms the literal meaning of the statute, that source definitions under section 112 were to be the same as source definitions under section 111.

The commenter stated that the term "major source" is defined in section 112(a)(1) of the Act as "any stationary source or group of stationary sources." The commenter further maintained that a major source refers to the plant as a whole or any collection of stationary sources within a plant emitting 10 tons or more of a toxic air pollutant. The commenter contended that Chevron USA, Inc. v. NRDC (hereafter referred to as Chevron), 467 U.S. 842-43 (1984) does not authorize the EPA to ignore plain statutory language linking section 112's definition of stationary source to prior regulatory decisions under section 111(a).

The commenter stated that the legislative history confirms that Congress intended a narrower stationary source definition for those source categories involving different kinds of emission points. The commenter quoted the Senate Report on S1630 at 168 [emphasis added]:

> . . . a particular VOC may be released from both a stack and from non-point sources in the facility. In [this] case, MACT will be determined for each type of emissions point and not for the facility as a whole.

The commenter contended that the HON regulates plants in precisely the kind of situation referred to in the Senate Report, but the HON allows sources to determine MACT for its HON process units as a whole or any part of it, rather than determining "MACT for each type of emission point" and requiring compliance as Congress intended. The commenter, quoting the Senate Report at 101-228, stated that the Senate Report specifically warned against this departure from past practice under section 111 [emphasis added]:

> Amendments to section 112(a) made by the bill also adopt a definition of "stationary source" different than used in current law. A stationary source is defined to include any particular unit of a facility or installation . . . in addition to the facility or installation itself. This definition is intended to prevent "bubbling" within facilities.

The commenter stated that the Senate Report's statement refers to the source definition in the Senate bill, and the House bill contained the language ultimately adopted. The commenter contended that the adopted definition makes the intention to exclude "bubbles," at least in this kind of industry even clearer by referring to the meaning of the term "stationary source" "under" section 111(a). The commenter (A-90-19: IV-D-85 and IV-G-9) stated that stationary source generally means unit "under" section 111, at least when plant sites are made up of different types of emission points.

The commenter contended that the stationary source definition in the Senate bill which was intended to preclude "bubbles" closely resembles the definition in section 111(a)(3) upon which the EPA relies. The commenter stated that the section 111(a)(3) definition refers to any "building, structure, facility, or installation," and the definition in the Senate bill refers to "any facility or installation or unit of such facility or installation." The commenter contended that even if Congress intended section 112 stationary source definitions to follow the language rather than the practice of section 111, it can hardly be seen as a repudiation of the Senate's intention to preclude "bubbles" such as the one proposed in this rule.

The commenter discussed statements made by Senator Durenberger, and contended that the Senator stated that a broad definition would be inappropriate if the group of plant lacked "similar configurations." The commenter stated that the Senator compared two alternatives in a draft EPA paper entitled "Definition of Source: Range of Alternatives" and rejected alternative 3(b) identified in the paper, which would focus MACT standards on entire plant sites. The commenter stated that instead, the managers, speaking through Senator Durenberger, endorsed alternative 3(a), which focuses MACT standards "on a specific portion of a contiguous facility . . ." (Cong. Rec. S16927, October 27, 1990) The commenter contended that the EPA acknowledges in the HON that the SOCMI source category consists of plants using various configurations of pollution-emitting units. The commenter argued that Senator Durenberger states unequivocally that the EPA should set standards "for logical parts" of plants, which like the plants in the SOCMI category consist of various pollution-emitting units in a variety of configurations (Cong. Rec. S16928).

The commenter contended that the legislative history refers to MACT standards over and over again as "technology-based" standards, which evinces an intent to "ban the bubble" and focus on logical parts of plants to which a technology is applied.

The commenter maintained that Chevron only allows agency discretion when the legislative history fails to speak to the precise point at issue. The commenter argued that when the legislative history speaks to the precise point at issue, meshes perfectly with the literal statutory language, and the position urged by the agency enjoys no explicit support whatsoever, the EPA must heed Congress' intent as revealed in the legislative history and language.

The commenter stated that the EPA has argued in its Early Reductions rule (57 FR 61970; December 29, 1992) that the Senate managers' statement only meant to preclude plant-wide definitions when plant-wide definitions would cause a small source category. The commenter argued that this is a misreading focusing on one sentence taken entirely out of context. The commenter stated that the comments as a whole reveal that differently configured sites must have MACT standards for their components.

The commenter stated that the EPA assumed that Congress meant to say that the definition of stationary source under section 112 need not comport with the meaning it has had under section 111(a)(3) provided it comports with the statutory language in section 111(a)(3). The commenter maintained that the EPA relied on Chevron's holding in the title I context that this language is ambiguous and that absent a specific indication of intent by Congress, the EPA's policy judgement demands deference.

The commenter contended that even if the language of section 111(a)(3) is broad enough to refer to an entire plant or an emitting unit and is unaccompanied by legislative history speaking to the point at issue, it is not broad enough to encompass the source definition in the HON proposal. The commenter stated that the proposal defines the source as "the set of emission points in the organic HAP-emitting processes used to produce synthetic organic chemicals that are in a contiguous area under common control" (57 FR 62613). The commenter maintained that this definition specified in the proposal and reflected in the emissions averaging provisions and applicability criteria does not require that the emission points be contiguous or part of the same process train; rather, they must be "in a contiguous area," i.e., in a plant, but the points themselves may be far apart from each other and not part of the same process. The commenter stated that this definition does not describe a "building," a "structure," a "facility," or an "installation;" rather, it describes several unrelated parts of a plant, at least with respect to a plant with more than one SOCMI process. The commenter concluded that hence, the definition is inconsistent with the language of section 111(a)(3).

The commenter maintained that the EPA has stated in the Early Reductions rule that "an 'installation' suggests some type of unit that undertakes a particular function, such as wastewater treatment system." The commenter argued that this conception, if it were correct and consistent with Congressional intent, could not justify a system in which the plant owner designs the source by choosing groups of emission points from different process units or from different kinds of emission points.

In contrast, five commenters (A-90-19: IV-D-51; IV-D-62; IV-D-63; IV-D-69; IV-G-1) supported the definition of source in the rule, which accommodates the concept of emissions averaging. One commenter (A-90-19: IV-D-51) considered the definition a valid approach based on the justification presented by the EPA. Another commenter (A-90-19: IV-D-63) agreed that defining source as a collection of emission points incorporates the flexibility necessary to implement an emissions averaging program.

Ten commenters (A-90-19: IV-D-32; IV-D-48; IV-D-57; IV-D-62; IV-D-74; IV-D-83; IV-D-92; IV-D-98; IV-D-104; IV-D-113) considered emissions averaging consistent with section 112 of the Act because sections 112(d) and (i) require sources, not individual emission points within sources, to comply with MACT. Hence, four commenters (A-90-19: IV-D-32; IV-D-57; IV-D-62; IV-D-113) regarded as without merit the argument that allowing emissions averaging does not satisfy the MACT floor. Two commenters (A-90-19: IV-D-32; IV-D-57) contended that this argument confuses "sources" with "emission points," and that "sources," not "emission points," must comply with MACT.

One commenter (A-90-19: IV-G-1) presented specific legal arguments in support of the EPA's definition of "source" to accommodate emissions averaging. The commenter (A-90-19: IV-G-1) stated that:

> "MACT source" averaging is entirely consistent with the Agency's historic discretion to define "source" based on the overall purposes of the particular program, as well as the Amendments' endorsement through silence of that discretion. See, e.g., Chevron, USA, Inc. v. NRDC, 467 U.S. 837 (1984). That is particularly true where a "compliance bubble" which assures MACT-equivalent reductions--not an "applicability bubble" which allows otherwise-covered emission points to escape such reduction requirements--is involved. Cf., e.g., Asarco, Inc. v. EPA, 578 F.2d 319 (D.C. Cir. 1978). Indeed, such "MACT source" averaging is *a fortiori* supported by EPA's repeated recognition that similar technology-based requirements mean RACT- or NSPS-equivalent reductions,

> not uniform controls on every regulated facility, point or source. e.g., NRDC v. EPA (American Cyanamid), 33 ERC 1657 (4th Cir. 1991); NSPS Compliance Bubble Policy, (52 FR 28946, 28954; Aug. 4, 1987). See also Emissions Trading Policy Statement, (51 FR 43829; December 4, 1986) (generally authorizing VOC RACT trades raising HAP implications within the same plant so long as any proposed or final NESHAP is the baseline, or where the HAP emissions stream is "traded down"). As Senator Durenberger, the principal author of what became new section 112, expressly noted, MACT was to function like technology-based effluent guidelines under the CWA. See, e.g., 136 Cong. Rec. S516 (Jan. 30, 1990). Those guidelines have long allowed categorical averaging between different outfalls at the same plant. See 49 FR 21024 (May 17, 1984); Krueger, "Implementing the Bubble Policy Under the Clean Water Act," 4 Virginia J. Nat. R. Law 155 (1984)."

Response: The EPA has reviewed the comments relating to the definition of "source" used in this rule, and has concluded that no change to the definition is warranted.

The EPA began by creating a list of source categories as required by section 112(c) of the Act. Section 112(c) requires that "to the extent practicable, the categories and subcategories listed under this subsection shall be consistent with the list of source categories established pursuant to section 111 and part C." As is clear from a review of those existing lists, the categories listed are generally broadly drawn. Listing SOCMI as a category on the section 112(c) list (57 FR 31576, July 16, 1992) is consistent with the general broad categorization of the section 111 and part C lists.

Section 112(d) directs the Administrator to set standards for all "major sources" within every listed category. Major sources are "stationary sources," or groups of stationary sources, of a given size, as defined in section 112(a)(1). The definition of "stationary source" included in section 112 is identical to the definition used in section 111(a) which is "any building, structure, facility, or installation which emits or may emit any air pollutant." 42 U.S.C. 7411(a). However, section 112 as amended, does not require that the standards set under section 112(d) be set for the same components of the categories as was done under section 111. Thus, there is no requirement that section 112(d) standards for sources in the SOCMI be set for precisely the same portions of the industry as the NSPS.

As the Supreme Court has recognized in Chevron, the EPA has broad discretion to define "source." The Court recognized in Chevron that if any Congressional intent can be discerned from the statutory language of section 111(a)(3) (the definition of "source" adopted in section 112), "the listing of overlapping, illustrative terms was intended to enlarge, rather than confine, the scope of the EPA's power to regulate particular sources in order to best effectuate the policies of the Act." Chevron. Thus, the court found that a "source" can encompass "any discrete, but integrated operation, which pollutes." As such, it could also encompass an entire plant, and the EPA has flexibility, within the broad definition of "stationary source," to define the source for each section 112(d) standard as broadly or narrowly as is appropriate for the particular industry being regulated.

Several commenters supported the EPA definition of source and disagreed with one commenter who argued that a source should be limited to an emitting unit. The EPA disagrees with the commenter who argued that the proposed definition of "source" for this rule violates the Act and should have been limited to an "emitting unit." The statute clearly states that the EPA is to set standards for categories of "source." It does not restrict the EPA's authority to emitting units. As discussed above, the Chevron decision makes clear that a source is a flexible term that the EPA has broad discretion to define in the context of each rulemaking. The EPA also disagrees with the commenter's argument that the EPA has ignored the plain statutory language linking the definition of "source" in section 112 of the Act to the definition in section 111(a). The EPA believes that the definition of "source" used in this rule is consistent with "any building, structure, facility, or installation which emits or may emit any air pollutant," [42 U.S.C. 7411(a)] and therefore does not violate the Congressional mandate to apply the 111(a) definition to sources under section 112.

For the HON, the EPA is defining "source" for the SOCMI source category as the process vents, storage vessels, transfer racks, wastewater collection and treatment operations, and equipment leaks in the organic HAP emitting chemical manufacturing processes that are located in a single facility covering a contiguous areas under common control. With this definition of source, all SOCMI portions of plant sites that are major sources under section 112, approximately 350, are subject to the standard.

A commenter also argued that the EPA's proposed definition of source was unlawful because it was inconsistent with language in the Senate Report accompanying S1630, which discussed a definition of stationary source that was intended to prevent "bubbling." However, the language in the Senate Report referred to a statutory change in the definition of "stationary source" that was later abandoned by Congress. Therefore, the Senate Report language referred to by the commenter is irrelevant.

2.3.2 Averaging at New Sources

Comment: Seven commenters (A-90-19: IV-D-85 and IV-G-6; IV-D-87; IV-D-90; IV-D-99; IV-D-100; IV-D-115; IV-F-7.6) recommended that if averaging is allowed, it should be restricted to existing sources only.

Two commenters (A-90-19: IV-D-94; IV-D-115) stated that new sources can and should be held to higher standards than existing sources. Three commenters (A-90-19: IV-D-51; IV-D-99; IV-F-7.6) maintained that historically, new and modified sources have been held to a higher standard than existing sources because, for example, it is most cost-effective to integrate state-of-the-art controls into equipment design and to install the technology during construction. One commenter (A-90-19: IV-D-70) stated that emissions averaging does not contribute to effective air pollution control because it could have the effect of allowing sources to be built or "substantially modified" without technically practicable and economically reasonable emission control technology.

Five commenters (A-90-19: IV-D-51; IV-D-85; IV-D-99; IV-D-115; IV-F-7.6) argued that because new source MACT as defined in the Act cannot be less stringent than the control achieved by the best controlled similar source, the Act does not allow new units to be undercontrolled, and hence, averaging for new sources is inconsistent with the Act and inadvisable under any circumstances.

Two commenters (A-90-19: IV-D-90; IV-D-100) opposed new sources being involved in emissions averaging because it would relax their State's current requirements and subvert the MACT requirements that are intended to result in the continuous reduction of HAP emissions.

In contrast, one commenter (A-90-19: IV-D-73) suggested that the economic benefit may be even more pronounced for new sources because new source MACT may have very low thresholds of applicability and hence, even wider ranges of cost effectiveness than the several orders of magnitude range for existing sources.

Response: The EPA agrees with the commenters that it is appropriate that emissions averaging be restricted to existing sources only. Averaging is a mechanism designed to provide each source the flexibility to comply with the MACT standard in a way that is most practical and cost-effective for the individual source. By employing averaging, a source is able, for example, to avoid adding controls to an outlying emission point that would be very expensive to control, or to avoid replacing expensive control technology that does not achieve enough emission reduction to meet the standard. These concerns are applicable to existing sources. A new source can be designed to avoid expensive outlying emission points, and retrofitting is obviously not an issue. In addition, when a new source is constructed, it can be designed to accommodate the required MACT controls in the most practical and cost-effective manner, thus reducing the need for the flexibility of averaging.

The EPA does not agree with the commenters who argue that prohibiting averaging at new sources would result in a more stringent standard. The HON has been drafted to provide that averaging is no less stringent than the standard without averaging. Thus, allowing new sources to comply only via use of the reference control technologies and not via averaging does not require those sources to meet a more stringent standard. Instead, it requires them to meet a more specific, and thus more easily implemented standard. However, even if prohibiting averaging at new sources would result in new sources being held to a more stringent standard, such a result would not be unlawful as the statute clearly provides that new source standards may be more stringent than those for existing sources.

2.3.3 Averaging Between New and Existing Sources

Comment: Four commenters (A-90-19: IV-D-51; IV-D-85; IV-D-94; IV-D-115) objected to allowing averaging between new and existing sources for the same reasons they opposed averaging within new sources (see previous comment).

Several commenters (A-90-19: IV-D-32; IV-D-56; IV-D-57; IV-D-64; IV-D-69; IV-D-72; IV-D-73; IV-D-74; IV-D-75; IV-D-78; IV-D-79; IV-D-80; IV-D-86; IV-D-92; IV-D-106; IV-G-1) supported allowing averaging between new and existing sources within the same plant. Five commenters (A-90-19: IV-D-32;

IV-D-57; IV-D-78; IV-D-79; IV-D-92; IV-G-1) argued that so long as the plant as a whole achieves the reduction required by MACT, including any increased level of reduction imposed on new sources, it will comply fully with section 112(i). One commenter (A-90-19: IV-D-64) also argued that including reconstructed sources in averages with new and existing sources should be allowed.

One commenter (A-90-19: IV-G-1) argued that once new source MACT is set in accordance with the floor and section 112(d), nothing in Title III appears to prevent those reductions from being achieved through an average with points subject to existing source MACT, and added that because equivalent reductions would be achieved, the averaging approach will equally well force technology. The commenter (A-90-19: IV-G-1) cited as a precedent 40 CFR part 60.47 (1990) (combined average between two existing units and one new unit to meet site-specific subpart D SO_2 NSPS through innovative coal cleaning technology that avoids scrubbing).

Two commenters (A-90-19: IV-D-32; IV-D-57) strongly opposed the suggestion in the proposal preamble that new and existing sources be made separate subcategories of SOCMI, arguing that Congress clearly intended source categories to be defined on the basis of types of operations and emissions and to include both new and existing sources. Two commenters (A-90-19: IV-D-32; IV-D-57) stated that this is apparent from the organization of section 112(d), which establishes requirements to be developed for "categories and subcategories" and then specifies special rules for new and existing sources within those categories. Two commenters (A-90-19: IV-D-32; IV-D-57) also referenced House of Representatives Report (H. Rep.) No. 490, P. 1, 101st Cong., 2d Sess. 328 (1990), as evidence of Congress' intent.

One commenter (A-90-19: IV-D-32) submitted that concern over averaging between new and existing sources could be a "non-issue" depending on how the EPA defines "new source." The commenter (A-90-19: IV-D-32) suggested that if the term "new sources" is made equivalent to "source" for purposes of section 112(i), there will never be occasion to average between a new source and another section 112(i) source because the two sources are not within the same contiguous area and under common control. The commenter (A-90-19: IV-D-32) further asserted that if new sources are defined as a source in a section 112(c) source category, or even as something less than the section 112(c) source, e.g., as a new process unit in an existing source, there is still no reason to disallow averaging between new and existing sources as long as the MACT-required reduction is achieved.

Response: The EPA does not consider it appropriate to allow averaging between new and existing sources. Thus, the EPA agrees with the conclusion of the commenters who objected to allowing averaging between new and existing sources and disagrees with those commenters who supported allowing averaging between new and existing sources. To allow averaging between new and existing sources would allow averaging at separate sources, which the EPA has determined to be beyond the bounds of permissible averaging under section 112 of the Act. While new and existing sources are not separate subcategories or categories of sources, they are separate sources. There are separate MACT standards with separate floors for new and existing sources under the HON. Allowing averaging between new and existing sources would lead to the likely consequence that one source would fail to meet its applicable standard, a consequence that cannot be reconciled with the statutory requirement that each source comply with the applicable standard. Consequently, averaging between new and existing sources, even if located at the same plant facility, is not permissible. This is fully consistent with the EPA's view, explained in section 2.4 of this BID volume, that averaging between sources is generally not permissible under section 112 of the Act.

2.3.4 Emission Points Allowed in Trades

Comment: Several commenters (A-90-19: IV-D-9; IV-D-10; IV-D-11; IV-D-49; IV-D-51; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6; IV-D-94; IV-D-99; IV-D-117 and IV-F-7.43; IV-D-118; IV-D-122; IV-D-123; IV-D-124; IV-D-125; IV-F-1.5; IV-F-7.6) objected to allowing sources to average across different kinds of emission points.

One commenter (A-90-19: IV-D-49) was concerned that allowing averaging across different kinds of emission points would make it difficult for State and local agencies to effectively analyze baseline calculations and monitor emissions.

Six commenters (A-90-19: IV-D-51; IV-D-70; IV-D-90; IV-D-99; IV-D-100; IV-F-7.6) stated that the impacts of emissions from different kinds of points can vary significantly if they have different emission characteristics that influence dispersion such as elevation, distance from the property line, volumetric flow and stack gas temperature, and the continuous or intermittent nature of emissions. Two commenters (A-90-19: IV-D-70; IV-D-99) warned that ignoring the differences in dispersion of pollutants emitted from various kinds of sources in different parts of a facility could result in increased adverse impacts on air quality. One commenter (A-90-19: IV-D-70) gave examples of how dispersion characteristics can impact air quality.

Response: The EPA agrees with the commenters that the characteristics of emission points may affect the dispersion and impacts of emissions. However, for several reasons, the EPA does not consider these potential differences in characteristics sufficient reason to limit averaging across different kinds of points. First, the potential for variations in emissions exists if the points are controlled by

RCT with no averaging. The mix of controlled and uncontrolled emission points under point-by-point compliance can also be skewed towards one location on a plant site or one kind of emission point.

Second, even among one kind of emission point (e.g., process vents), there is variation in height, exit velocity, distance to fenceline, mix of HAP's, and other characteristics that influence the environmental impact of the emissions. These variations in characteristics would still exist regardless of whether the rule allows emissions averaging across different kinds of points, and differing impacts due to the variation would still be possible.

Third, it is equally likely that emissions averaging could result in decreased impacts if points closer to the fenceline are controlled to a greater extent than required under RCT. Finally, it is reemphasized that emissions averaging will probably be used with only a few points in each facility. As a result, averaging will probably only influence a small proportion of the total emissions from a source.

In regards to the comment that it will be difficult for State and local agencies to analyze baseline emissions and monitor emissions, it is not necessary for implementing agencies to perform these tasks. For compliance purposes, debits and credits are based on the actual operation of the emission points during each quarterly compliance period, and must be calculated using actual operating data and consistent estimation techniques. The only baseline decision that must be made concerns when controls were applied. Controls applied prior to November 15, 1990 are considered part of the source's baseline control and cannot be used to generate credits.

Comment: Six commenters (A-90-19: IV-D-9; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-118; IV-D-124; IV-D-125) claimed that allowing averaging across different emission points and different types of process units facilitates "game-playing." Five commenters (A-90-19: IV-D-9; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-118; IV-D-124; IV-D-125) were concerned that sources can use inconsistent emissions estimation techniques for credits and debits when averaging across different types of sources and emission points. One commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) specifically claimed that trades between different process units will allow plant operators to claim credits that reflect differences in production rate rather than added controls.

Four commenters (A-90-19: IV-D-49; IV-D-51; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6; IV-F-7.6) recommended that trades, if allowed, should be limited to the same kinds of emission points within a process unit. One commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) added that this would provide a check on the use of inconsistent emissions estimation methodologies, especially if the EPA also required application of identical replicable emissions calculation methods, identical assumptions for credits and debits, and stringent emissions monitoring.

Response: The EPA acknowledges that there is potential for significant complexity in the emissions averaging policy because it allows averaging across different kinds of points and different process units. However, the EPA has decided to maintain this scope for the final rule with the rationale that the averaging program has sufficient structure to prevent inconsistencies or inappropriate compliance scenarios from arising. Specifically, the emissions averaging program makes use of: (1) consistent emission estimation techniques; and (2) actual operating data to calculate both debits and credits.

Consistent emission estimation techniques are incorporated into the rule. Many of these techniques are used in other standards and have been found to be verifiable and enforceable or have been updated for this rule. Only one method for estimating debits and credits is allowed for each kind of point, and these procedures are thoroughly prescribed in the emissions averaging provisions. The EPA is confident that use of these consistent estimation techniques for different kinds of points will check the potential for "game-playing."

In select cases, sources have some latitude in determining certain parameters. For instance, the vent stream flow rate needed to calculate process vent emissions can be measured using one of a number of similar methods. Also, historical records or process knowledge may be substituted for the determination of values for representative operating parameters to establish average wastewater stream flow rates. Use of one method versus another could be construed as using different assumptions; however, the different methods have all been determined to be interchangeable. As a result, the EPA maintains that there is no opportunity for the use of inconsistent estimation methodologies in this rule. Hence, the EPA considers emissions monitoring as a check on the use of inconsistent estimation techniques to be unnecessary. The EPA has included provisions for appropriate monitoring in the rule. These provisions are addressed in greater detail in section 2.8.2 of this BID volume.

The use of actual operating data to calculate both debits and credits will also limit "game-playing." Credits can be derived only from a demonstrable reduction of emissions achieved by either an approved control technology or pollution prevention measure that performs better than what is required under point-by-point compliance. Sources cannot claim credits that reflect differences in production rates between processes.

It is true that if a credit-generating point and a debit-generating point both generate an equal amount of credits and debits per unit of operation, the source can generate more credits than debits by operating the credit generator more than the debit generator. However, this cannot be construed as the source generating credits because of a difference in production rates. Rather, credits result from controlling the credit generator to a level more stringent than what the rule requires. Thus, for a given level of operation, the point is emitting less than what it is allowed. As production increases, the difference between the allowed and actual emissions for that emission point increases, and the credits attributable to that point also increase.

Comment: Two commenters (A-90-19: IV-D-90; IV-D-100) stated that any legal authority the EPA has in allowing emissions averaging across all emission types must be based on the demonstration of equivalency between emission types, the ability to ensure compliance with permit conditions, and the potential toxicity of HAP's emitted from these emission points. Another commenter (A-90-19: IV-D-70) was concerned with averaging across different process units because they generally have different characteristic HAP's which have varying levels of toxicity.

Response: The EPA maintains that it has ample legal authority to allow averaging among different kinds of emission points because the source (which is defined as the collection of emission points) is required to reduce emissions to the maximum level achievable.

The EPA holds that its legal authority is in no way defined or constrained by the conditions the commenters suggest. First, it is not clear what the commenters meant by a demonstration of equivalency between emission types, but the emission reductions from two points are generally considered equivalent if the total mass quantities of reductions are equal. Second, compliance with permit conditions is ensured in the rule; comments regarding enforcement are further addressed in section 2.8 of this BID volume. Finally, the issue of toxicity in emissions averaging is addressed in detail in section 2.9 of this BID volume.

Comment: Seven commenters (A-90-19: IV-D-9; IV-D-118; IV-D-124; IV-D-125; IV-D-45 and IV-F-7.7; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6) specifically objected to sources being allowed to include wastewater emissions in an averaging scheme because they considered accurate or reliable estimation of wastewater emissions to be unlikely or impractical.

One commenter (IV-D-45 and IV-F-7.7) was concerned that underestimates of emissions and inclusions in averages could lead to undercontrol of emissions from wastewater plants. Another commenter (A-90-19: IV-D-85) stated that the wide variability over time of wastewater characteristics that affect emissions, such as mass concentrations, wind speed, oxygen content, surface configurations, temperature, flow rate, etc., make the estimation of wastewater emissions extremely uncertain and the inclusion of wastewater in emissions averaging especially irresponsible. One commenter (A-90-19: IV-D-70) was specifically concerned about the uncertainties involved in calculating "fractions removed" by steam stripping the various VOHAP's.

One commenter (A-90-19: IV-D-85) claimed that the EPA has recognized that a numerical standard would not be feasible for wastewater emissions. The commenter (A-90-19: IV-D-85) argued that on the other hand, to include wastewater emissions in averaging would require assigning a numerical emission target to "overcontrolled" wastewater streams. The commenter (A-90-19: IV-D-85) concluded that the same reasoning that supported not setting numerical limitations for wastewater requires its deletion from emissions averaging.

One commenter (A-90-19: IV-D-70) stated that if it is not possible to exclude wastewater from emissions averaging, then more rigorous monitoring and testing of wastewater concentration and flow rate should be required to quantify the emissions, along with a very conservative discount factor.

Response: The EPA considers the estimation of wastewater emissions on an annual basis to be as reliable as for the other kinds of points and hence, suitable for inclusion in emissions averaging.

The EPA has recognized that the wastewater characteristics cited by one commenter could make emissions from areas such as surface impoundments changeable and difficult to measure. Therefore, debits and credits for wastewater streams, as well as HON applicability to wastewater streams and Group status of streams, are determined at the stream point of generation. Also, if a wastewater stream is being controlled as a credit generator, the stream must comply with the standards for transport and handling equipment, which require suppression to eliminate the influence of factors such as wind speed, oxygen content, and surface configurations. This ensures that the only emissions that need to be considered are those from the control device.

As in the case of other emission points, characteristics such as HAP concentration, temperature, and flow rate remain relatively constant in wastewater streams so that representative values can be used. The rule provides that if operating conditions change such that previously measured values are no longer representative, the values must be redetermined.

The final rule now specifies that wastewater streams treated in biological treatment units are not eligible for emissions averaging. All other types of control are acceptable as long as their reduction efficiency can be determined. The EPA is confident that by making biological treatment of wastewater ineligible for averaging, the potential for underestimation of wastewater emissions will be minimized.

It was not clear whether one commenter was questioning the accuracy of the Fr's included in table 9 of subpart G of the final rule, or whether the commenter was concerned about the uncertainty in calculating Fr's for a steam stripper that is not operated to the efficiency specified for the RCT. The EPA is confident of the Fr's included in table 9, which are to be used when the RCT is employed and which were updated for the final rule to reflect new information improving their accuracy. The discussion of how the factors were determined and updated for the final rule can be found in section 5.1 of BID volume 2B.

The EPA is also satisfied that sources can determine Fr's accurately for a steam stripper that is not being operated to the efficiency required for the RCT. A steam stripper that is not the design steam stripper can be used to comply with the rule without averaging, and the rule specifies the procedures and test methods to be used to demonstrate that the steam stripper can achieve the required HAP removal efficiency. These same sampling and analytical methods that are used to demonstrate compliance are also appropriate for determining the treatment efficiency of a steam stripper on a debit-generating wastewater stream.

One commenter was mistaken regarding whether the EPA considered a numerical standard feasible for wastewater emissions. The proposal preamble stated that a numerical standard would not be feasible for the provisions for wastewater <u>transport and handling equipment</u>. On the other hand, the provisions for reduction of VOHAP concentration in the wastewater streams are in a numerical emission limit format, specifically a percent emission reduction. However, the wastewater RCT cannot be assigned a single reduction efficiency because the different constituents in wastewater streams will have different volatilities and strippabilities. Nonetheless, the wastewater provisions for achieving reductions are in a numerical format, which means that a source has a "target" for overcontrolling wastewater streams to generate emission credits.

Thus, the EPA considers the provisions for characterizing and monitoring wastewater emissions suitable for emissions averaging as well as for point-by-point compliance. Similarly, the EPA considers a very conservative discount factor for credits generated from wastewater unnecessary because the estimation of wastewater emissions is as reliable as for the other kinds of emission points. In summary, many of the concerns for including wastewater emissions in emissions averaging stem from misunderstandings about the nature of its control in the rule, which is discussed in greater detail throughout BID volume 2B.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-50; IV-D-56; IV-D-58; IV-D-62; IV-D-73; IV-D-75; IV-D-79; IV-D-86; IV-D-89; IV-D-92; IV-D-113) urged the EPA to allow sources to include equipment leaks and fugitive emissions in emissions averaging. One commenter (A-90-19: IV-D-89) complained that not allowing credit for controlling fugitive emissions discourages voluntary pollution prevention measures. One commenter (A-90-19: IV-D-92) stated that fugitive emission rates are required to be calculated for emissions in nonattainment areas, permitting, and health effect reviews, so facilities should be allowed to use fugitive emission reductions for credits in emissions averaging. Another commenter (A-90-19: IV-D-75) added that quantification of fugitive emissions is required to be submitted annually with SARA title III section 313 reports. The commenter (A-90-19: IV-D-75) stated that extensive work by industry and the EPA has been conducted on quantifying emissions from fugitive leaks and contended that there is sufficient data to develop a protocol and calculation methodology to adequately estimate emissions.

Four commenters (A-90-19: IV-D-32; IV-D-62; IV-D-75; IV-D-113) suggested that it is already possible to quantify emissions from equipment leaks sufficiently. Two commenters (A-90-19: IV-D-32; IV-D-73) contended that the equipment leaks provisions address many emission points, such as sampling systems, compression seal vents, closed-vent systems, and product accumulator vessels, for which emissions can be quantified through methods similar to those adopted for emission points addressed in subpart G, and hence, these points should be eligible for emissions averaging. Another commenter (A-90-19: IV-D-58) added that the proposed provisions for controlling equipment leaks enable the inclusion of equipment leaks in emissions averaging. The commenter (A-90-19: IV-D-58) elaborated that a facility would be required to specify how it will achieve compliance to further reduce emissions. The commenter (A-90-19: IV-D-58) suggested that some emission points could be designated with a lower leak rate definition than in the negotiated rule, or with a lower percent leak rate to earn credit. The commenter (A-90-19: IV-D-58) advanced another possibility that other process streams currently excluded from the rule could be added.

Three commenters (A-90-19: IV-D-32; IV-D-62; IV-D-113) recommended that fugitive emissions be quantified according to the methods published in the EPA's document, "Protocols for Generating Unit Specific Emissions Estimates of Equipment Leaks of VOC and VHAP." (1988) The commenters (A-90-19: IV-D-32; IV-D-62; IV-D-113) suggested that this document contains procedures that can be used to establish baseline emissions resulting from the HON standards and "screening value correlations" to calculate actual emissions and potential credits.

One commenter (A-90-19: IV-D-73) suggested that the EPA review the adequacy of an estimating procedure and statistical data base being compiled by the CMA (the POSSEE data base) to support quantification of equipment leak mass emission rate estimates.

In contrast, two commenters (A-90-19: IV-D-51; IV-D-99) agreed with EPA's decision not to include equipment leaks in emissions averaging. Two commenters (A-90-19: IV-D-99; IV-D-115) opposed equipment leak emissions being included in future averaging rules because quantification of equipment leak emissions will be problematic.

Response: The EPA acknowledges that methods are available for quantifying emissions from equipment leaks; however, this is not at issue in emissions averaging. As stated in the proposal preamble, equipment leaks cannot be included in emissions averages for two reasons. First, a reference control efficiency cannot be established for the negotiated standard for equipment leaks because the percent reduction achieved by complying with subpart H of the rule will vary depending on the characteristics of the process and the equipment being controlled. Second, no method currently exists for determining allowable emissions for leaks, i.e., residual emissions from equipment controlled according to subpart H. Without a reference control efficiency or the ability to assign allowable emissions, debits and credits cannot be established for any kind of point.

Some commenters suggested methods for generating credits from equipment leaks. One proposal was to designate a lower leak rate definition or a lower percent leak rate than in the negotiated rule for some emission points. Such a policy could allow a source to overcontrol equipment leaks, but it still does not enable a source to estimate allowable emissions so that debits and credits can be calculated.

The other suggestion was to use residual emissions after complying with subpart H of the rule as allowable emissions and "screening value correlations" to establish the actual emissions. However, credit and debit calculations must be based on allowable and actual emissions from the same time period. It is not acceptable to base averages on allowable emissions from one time period and actual emissions from a different period because the allowable emissions must be calculated using the same operating rate data as the actual emissions. Until suitable methods are developed to assign reference control efficiencies and allowable emission for particular leak points, equipment leaks cannot be allowed in emissions averages.

Comment: One commenter (A-90-19: IV-D-50) suggested that a 100 percent credit should be allowed if facility-specific emission factors are developed by bagging, and a partial credit should be allowed if EPA-developed factors are used. The commenter (A-90-19: IV-D-50) explained that generally these factors have been found to be high, therefore, applying a 50 percent credit for such emissions would provide an ample margin of safety to assure an overall reduction.

Response: The commenter did not define their use of the term "bagging." It is assumed that the reference is to the technique of measuring emissions by enclosing an emission point or area completely, allowing only one outlet for sampling. This technique is used primarily for estimating fugitive emissions, so it is assumed that the commenter is referring to a method for including equipment leaks in emissions averages.

As stated previously, the issue is that neither a reference efficiency nor allowable emissions can be established for equipment leaks, not whether equipment leaks can be quantified. Because a suitable method has not been identified, equipment leaks cannot be included in emissions averaging at this time.

2.4 COMPLEMENTARY LEGAL INTERPRETATION FOR BROADER EMISSIONS AVERAGING

2.4.1 Legality of Broader Averaging

Comment: Seven commenters (A-90-19: IV-D-32; IV-D-58; IV-D-62; IV-D-74; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-86; IV-D-108) maintained that ample legal authority exists to support adopting a broad emissions averaging scheme. One commenter (A-90-19: IV-D-83) stated that in the proposal the EPA used a broad definition of "source," which includes both SOCMI and other processes at a plant site, to determine whether it is a major source and therefore subject to MACT standards. The commenter (A-90-19: IV-D-83) contended that the use of this broad source definition for determining applicability of the HON provides the legal basis for allowing emissions averaging within the entire plant site.

Seven commenters (A-90-19: IV-D-32; IV-D-62; IV-D-74; IV-D-82; IV-D-98; IV-D-108; IV-G-1) agreed that the EPA has broad discretion to define "source." Four commenters (A-90-19: IV-D-32; IV-D-62; IV-D-82; IV-G-1) asserted that the EPA's discretion to define "source" according to the context has been firmly established in Chevron. One commenter (A-90-19: IV-D-32) found further authority in Alabama Power Co. v. Costle, 635 F.2d 323 (D.C. Cir., 1979). One commenter (A-90-19: IV-G-1) cited the can coaters' "bubble" authorizing plant-wide RACT compliance (45 FR 80824, December 8, 1980) as a precedent for the plant-wide average compliance interpretation.

One commenter (A-90-19: IV-D-62) concluded that the EPA's authority to define "source" stems from Congress not having clearly stated such a definition in the Act. Furthermore, the commenter (A-90-19: IV-D-62) declared that the EPA's definition is based on a permissible construction of the statute.

Seven commenters (A-90-19: IV-D-32; IV-D-73; IV-D-74; IV-D-86; IV-D-98; IV-D-108; IV-G-1) considered the broader averaging scheme to be consistent with sections 112(d) and (i) of the Act. Three commenters (A-90-19: IV-D-32; IV-D-74; IV-D-108) claimed that for the purposes of section 112(d), the EPA may define "source" as only SOCMI operations; the "source" under section 112(i) may then be defined as any entire facility within a contiguous area and under common control to which MACT standards are applicable. Another commenter (A-90-19: IV-D-62) noted that the EPA has already adopted a plant-wide definition of "source" in its Early Reductions rule and its 1986 Emissions Trading Policy Statement. Three commenters (A-90-19: IV-D-32; IV-D-74; IV-D-108) concluded that with this dual definition of source, nothing should bar emissions averaging across emission points that are within the same section 112(i) source but in different section 112(d) source categories so long as the section 112(i) source achieves the reduction required by all applicable MACT standards.

One commenter (A-90-19: IV-D-82) claimed that nothing in the Act forbids a plant-wide approach to MACT compliance, and several elements of the statute support it. The commenter (A-90-19: IV-D-82) submitted that in fact, Congress deleted language in the Senate bill that would have expressly forbidden a "bubble" approach to MACT compliance. The commenter (A-90-19: IV-D-82) also noted that under section 112(g), a plant can "net out" of premature MACT by making source-wide reductions, and because Congress expressly allowed a plant-wide approach to postponing MACT, this should also be an allowable approach to compliance with MACT after MACT becomes applicable. The commenter (A-90-19: IV-D-82) also cited a case, <u>NRDC v. Thomas</u> (1986), as supportive of broader averaging in which the EPA allowed averaging across "engine families" to comply with Title II of the 1990 amendments to the Act.

One commenter (A-90-19: IV-D-51) did not agree with the interpretation of the significance of the usage of "source" between 112(d) and 112(i), and stated that section 112(a) defines the word "source" as it is meant to apply in section 112, and no language in subsequent paragraphs of section 112 modifies the definition of "source." The commenter (A-90-19: IV-D-51) added that the Chevron decision does not give the EPA the authority to tamper with a basic definition unless certain conditions are met.

One commenter (A-90-19: IV-D-85) stated that the complementary legal interpretation as articulated in the proposal preamble conflicts with explicit statutory language [Accord Memorandum from Alan Eckert, EPA General Counsel, to David Rivkin, President's Council on Competitiveness (October 9, 1992) A-90-19, II-F-16]. The commenter maintained in an extensive discussion that if the EPA wishes to redefine "stationary source" to include the entire plant, it must require MACT controls on the entire plant; otherwise, it will violate sections 112(d) and (i) of the Act, which require maximum achievable emissions reductions from the stationary source.

The commenter stated that the complementary interpretation posits that the EPA may define stationary source differently for purposes of section 112(d) and section 112(i) and that doing so allows achievement of the result sought. The commenter (A-90-19: IV-D-85) maintained that both suggestions are incorrect.

The commenter contended that the language in section 112(i) does not allow a plant-wide stationary source definition, and the language of section 112(d) by itself precludes acceptance of the complementary legal approach. The commenter stated that section 112(d)(2) speaks of standards "applicable to new or existing sources," which means that Congress intended the standards to apply to specific stationary sources, not to subcategories of stationary sources and not to "major sources" including several subcategories of sources.

The commenter contended that section 112(d)(2) further states that MACT standards must "require" maximum achievable emissions reductions for the "new or existing sources in the category or subcategory to which the emission standard applies." The commenter maintained that the alternative interpretation could require no emissions reductions from the stationary source to which the standard applies, if all the emission reductions came from elsewhere in the plant. The commenter stated that any deviation from maximum achievable emissions reductions <u>from the stationary source</u> would violate section 112(d). The commenter stated that, on the other hand, if the stationary source is defined to encompass the entire plant, then the entire plant must achieve maximum achievable emissions reductions, not just part of it.

The commenter contended that section 112(i)(3)(A) requires the "source" to comply with the MACT standard. The commenter stated that the complementary interpretation suggests that Congress intended to use the word "source" in this context to mean "major source." The commenter contended that it is illogical to think that the schedule for compliance created under section 112(i) applies to a different entity than the emission standard created under section 112(d), and section 112(d) speaks of standards "applicable to new or existing sources" just as section 112(i)(3) speaks of standards "applicable to a source." The commenter maintained that Congress intended that: (1) MACT standards must require maximum achievable reductions from each regulated stationary source; and (2) each stationary source must comply with the standard. The commenter maintained that a MACT level not requiring maximum reductions from the entire stationary source violates the law.

The commenter maintained that from a policy standpoint, the alternative interpretation poses enormous problems. The commenter stated that under that interpretation, States would be burdened with verifying estimation of emission credits from all kinds of different processes and emission points.

The commenter stated that the preamble of the proposal claims that the alternative definition would generate improved controls at parts of the plant not addressed by the HON, thus raising the level of control determining the floor levels for future MACT standards. The commenter contended that the claimed advantage of raising the floor will not materialize; plant operators will simply claim credit for reductions they are already making to meet other State or Federal standards or to mollify angry citizens.

The commenter stated that the EPA has not used actual emissions data in generating floors for the SOCMI. The commenter maintained that improvements in the actual floor level of control, even if they occurred, would not affect EPA decision-making unless the EPA requires reports of: (1) the emissions achieved at all non-HON points used in the average; (2) an identification of the process unit of which the controlled point is a part; and (3) a statement as to which source category the point belongs to. The commenter stated that the EPA would have to then enter this information in its data bases for future rulemakings. The commenter concluded that the alternative legal interpretation would simply lead to less control from the facility as a whole.

On the other hand, one commenter (A-90-19: IV-D-32) disagreed with the argument that averaging between source categories could violate MACT floor requirements. The commenter argued that MACT standards must achieve reductions no less stringent than the floor, but section 112(i) requires sources to comply with MACT, not with the MACT floor, and the Act says nothing about how sources must go about complying with a MACT standard once it is established. The commenter stated that where a facility is subject to two or more MACT standards, the overall degree of reduction that it must achieve will be the sum of the reductions required under those standards. The commenter contended that as long as the facility achieves an overall level of reduction or the aggregation of emission points that are subject to the various MACT standards, it has satisfied MACT. The commenter suggested that at a minimum, the EPA should allow emissions averaging to include all emission points that are within source categories that are subject to MACT.

Response: After studying the arguments presented by the commenters both for and against a broader averaging approach, the EPA has decided to retain the narrower approach contained in the proposed rule.

The EPA agrees with the commenters who argued that the statute provides broad discretion to define "source," and does not prohibit averaging in setting standards under section 112(d) of the Act. However, the EPA has determined that section 112 does provide some limits on the scope of averaging, and that the broader averaging approach discussed in the proposal preamble exceeds those limits.

As several commenters pointed out, the statute requires the EPA to consider emissions from the entire facility in order to determine whether it is a major source subject to a given MACT standard. However, the EPA is also required to develop a list of source categories, which are to be composed of "sources" that are then subject to regulation under MACT standards. Both the language of section 112(d) and the legislative history indicate that sources in the category can be coextensive with a major source, but are just as likely to be merely a portion of a facility. Thus, a large facility emitting more than 25 tons of multiple HAP's will, in most cases, be composed of multiple sources in different source categories subject to standards on different dates. It does not follow that, because applicability under section 112 (i.e., whether a facility emits sufficient HAP's to be considered a major source) is determined on a facility-wide basis, compliance with specific standards written for sources that comprise only a part of a facility should be permitted on a facility-wide basis. The most that can be inferred is that the entire facility is the largest entity that can be defined as a source within any category, but that the source in a category can, and often will be, smaller than the entire facility.

In accordance with section 112(i) of the Act, all sources in the category for which a standard is in effect must be in compliance by a specified date. Commenters' arguments that section 112(i) allows compliance with a standard that is set for a source category to be achieved by a "source" that is more extensive than the source in the category (i.e., the entire major source that the source in the category is a fraction of), is inconsistent with the specific language of section 112(i). Section 112(i) provides different compliance requirements for new and existing sources. New sources must comply with an applicable standard earlier than existing sources, which can be given up to three years to comply. Moreover, section 112(i)(3) provides for compliance dates to be established for "each category or subcategory of existing sources." This provision clearly applies to compliance by sources in a category rather than compliance with a standard by any points within an entire major source. Therefore, section 112(i) clearly provides for compliance by individual sources within the relevant category rather than overall compliance by a major source with a standard applicable to only part of the major source.

Thus, the EPA is adopting the more limited approach to averaging that was contained in the proposed rule. All sources within a given source category must comply individually with the standard either by application of the reference control technology or by compliance with an approved emissions average. Transferring emission reduction obligations to points outside of the source within the category would be inconsistent with the requirement of section 112(d) of the Act that standards be set for sources in a listed category, and the requirements of section 112(i) that compliance with such standard be achieved by sources in the category.

2.4.2 Policy and Practical Considerations

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-48; IV-D-50; IV-D-56; IV-D-58; IV-D-62; IV-D-64; IV-D-69; IV-D-72; IV-D-73; IV-D-74; IV-D-75; IV-D-79; IV-D-82; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-86; IV-D-89; IV-D-92; IV-D-98; IV-D-106; IV-D-108; IV-D-113; IV-F-1.6 and IV-F-6; IV-G-1) supported allowing a broader emissions averaging that includes emission points located anywhere within a facility and not subject to the HON. Some of the reasons listed by commenters include: (1) it would enable sources to achieve the required emission reductions earlier, with greater flexibility, or more cost-effectively; (2) it would encourage the development of alternative innovative control methods for the HON or for emission points not covered under the HON, which could be used to establish and potentially tighten the floors for future MACT standards; (3) it could reveal emission points that may have been otherwise overlooked by regulators, which could lead to more accurate emission characterization in the future; and (4) not allowing emissions averaging across source categories would completely eliminate the incentives for emissions averaging.

Four commenters (A-90-19: IV-D-58; IV-D-62; IV-D-113; IV-F-1.6 and IV-F-6) cautioned against restricting emissions averaging to only facility operations within the same 2-digit SIC code.

One commenter (A-90-19: IV-D-92) recommended allowing averaging among sources not under common ownership or control as is currently allowed under the nonattainment area policy of the Act.

Two commenters (A-90-19: IV-D-92; IV-D-98) supported broader averaging that would allow HAP's not regulated by the HON to be averaged as they become covered by subsequent MACT standards. Another commenter (A-90-19: IV-G-1) stated that plant-wide averaging should be limited to organic HAP's, but not only organic HAP's covered by a MACT standard. The commenter (A-90-19: IV-G-1) argued that equivalent reductions of any organic HAP's within the fenceline should be allowed and cited the proposed Economic Incentive Program Rules as a precedent.

One commenter (A-90-19: IV-D-58) was concerned that as a result of the EPA definition of a "major source" under section 112(a) to include all source categories at the same location, all emission points at that location, even small ones, would be required to install relevant MACT requirements regardless of their emission rate because these points could not be included in the emissions averaging program for the predominant source category, unless broader averaging is allowed.

One commenter (A-90-19: IV-D-32) recommended that if broader averaging is allowed, the EPA should not specify detailed requirements for the baseline level of control to be used to determine credits from non-SOCMI emission points and that the enactment date of the 1990 amendments to the Act is an appropriate baseline date. Another commenter (A-90-19: IV-D-58) suggested that provisions similar to those of the Early Reductions Program promulgated under section 112(i)(5) could be used to establish the baseline and enforce averages.

Another commenter (A-90-19: IV-D-89) suggested that the data needed to establish a baseline can be identified in the Implementation Plan, and non-SOCMI emission points could be made mutually subject to the HON.

Two commenters (A-90-19: IV-D-74; IV-D-108) argued that once an operating permit program is in place, the operating permit must identify the applicable requirements for each emission point, and credit could be allowed for the difference between the otherwise applicable rules (e.g., RACT) and more efficient controls. The commenters (A-90-19: IV-D-74; IV-D-108) concluded that enforceability of broader averaging could be ensured by the annual and quarterly calculations of the average as well as by enforcement of the operating permit.

One commenter (A-90-19: IV-D-79) recommended that the EPA develop specific procedures for establishing compliance for non-SOCMI emission points included in averages that will not conflict with a source's HON compliance, and that possibly group applications for approval of compliance procedures through trade organizations or ad hoc groups could be allowed.

In contrast, eight commenters (A-90-19: IV-D-49; IV-D-51; IV-D-85; IV-D-87; IV-D-90; IV-D-100; IV-D-115; IV-F-7.6) opposed allowing broader averaging for reasons including: (1) averaging between source categories, organic and inorganic HAP's, or new and existing sources is unacceptable; (2) broader averaging would significantly reduce the impact of the HON on the originally intended emission points and result in fewer reductions within the source category; (3) it has no scientific or regulatory basis and presents administratively burdensome requirements; and (4) because non-SOCMI sources may not be covered by a MACT standard, it could not be guaranteed that the standards for non-SOCMI sources will be consistent with SOCMI standards and that broader averaging would permit averaging in the same way.

Response: As discussed in the previous section, emissions averaging can be permitted only among emission points that are within the SOCMI source category. Hence, although the comments submitted on the policy and practical aspects of this issue are not without merit, due to the finding that broader averaging cannot be allowed, these comments are no longer applicable.

2.5 CREDITS

2.5.1 General Issues

Comment: Two commenters (A-90-19: IV-D-72; IV-D-106) argued that credit should be allowed for all measures that result in quantified emissions reductions beyond that required by the standard. Another commenter (A-90-19: IV-D-59) argued that credit should be allowed for the actual obtained efficiency, not just for controls over the RCT's stated efficiency because the latter penalizes industry for installing the more efficient emission control device.

Response: Credit is allowed for all measures that result in control levels more stringent than what the rule requires for the relevant emission point or points. If a Group 2 point is controlled, credit is allowed for the actual obtained reduction, not just for reductions over the RCT's nominal efficiency. However, to generate credits from Group 1 points, the emission reductions must be greater than what can be achieved using RCT. Otherwise, emissions averaging would not achieve the same reductions or represent an equivalent alternative to point-by-point compliance. Allowing credit for the difference between the actual obtained efficiency and the RCT's nominal efficiency does not penalize a source for installing the more efficient emission control device. Instead, it gives a source the incentive to develop controls that are more efficient than RCT, an incentive that would not be present without emissions averaging.

Comment: One commenter (A-90-19: IV-G-17) foresaw only a limited number of situations where cost-effective credits might be available, which would force only the most difficult-to-control points to be averaged. Hence, the commenter (A-90-19: IV-G-17) anticipated that any averaging would involve only a limited number of emission points. Moreover, the commenter (A-90-19: IV-G-17) reported that since only very special circumstances make an emission point worth considering for averaging, there does not appear to be a pattern of the particular kind of emission point that would be a candidate for averaging, nor is a pattern expected.

Two commenters (A-90-19: IV-D-63; IV-D-71) argued that the emissions averaging proposal is too constrained to be of much use. One commenter (A-90-19: IV-D-63) concluded that the stringency of the proposed program will limit its applicability, and most sources will not find many opportunities to generate credits because, for example, controlling Group 2 points will generate only a small number of credits.

Response: The EPA acknowledges that there are numerous specific elements of emissions averaging that can be considered constraints. This specificity is intended to ensure that emissions averaging results in emission reductions equivalent to point-by-point compliance and that there are adequate records and reports to ensure enforceability. The EPA expects that emissions averaging will still allow sources to avoid situations where point-by-point compliance would be unusually expensive. The EPA anticipates that for the majority of sources, the most cost-effective way to obtain the required emissions reduction is to control the largest emitters, i.e., the Group 1 points.

In addition, it should be noted that a source is not limited to generating credits only from Group 2 points. Some facilities will find instances where it is more cost effective to overcontrol certain Group 1 points, perhaps with pollution prevention, to generate credits.

2.5.2 Use of RCT Above Rated Efficiencies

Comment: Four commenters (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6; IV-D-99; IV-D-115; IV-F-1.5) opposed allowing credit for overcontrol, i.e., control to a higher efficiency than the RCT's rated efficiency.

Two commenters (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12; IV-F-1.5) argued that allowing extra credits for reductions that go beyond a benchline standard is inconsistent with the MACT concept. One commenter (A-90-19: IV-D-99) stated that not allowing credits for overcontrol beyond the RCT's rated efficiency would simplify the averaging process by applying uniform credit for specific control measures.

One commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) noted that as stated in the draft rules sent to OMB in December 1991, allowing credit for overcontrol is inappropriate because the rated efficiency is intentionally conservative, and understates the reductions the RCT will actually achieve if properly operated. The commenter (A-90-19: IV-D-85) argued moreover that to the extent the reference control efficiency understates the actual emissions, emissions averages will attain less than the maximum achievable emission reduction, because of the gap between what would have been achieved in reality without averaging and the efficiency used to calculate a debit. Two commenters (A-90-19: IV-D-85; IV-D-115) observed that the proposal does not provide for debits when use of an RCT results in undercontrol, nor does it require CEM's in order to detect undercontrol, which should be counted into an average. Thus, one commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) predicted that allowing credit for overcontrol will create "paper credits," which will be used to balance real emission increases.

Nine commenters (A-90-19: IV-D-33; IV-D-56; IV-D-72; IV-D-74; IV-D-75; IV-D-92; IV-D-98; IV-D-106; IV-D-108) supported allowing credit for reductions from the use of RCT at a more efficient level than the efficiency rating established for that RCT.

Two commenters (A-90-19: IV-D-74; IV-D-108) argued that credit for many potentially significant emissions reductions would be lost if credit is not given for reductions from the use of RCT at a more efficient level than the rated efficiency. Three commenters (A-90-19: IV-D-74; IV-D-75; IV-D-108) warned that sources would have no incentive to achieve greater efficiencies. Two commenters (A-90-19: IV-D-72; IV-D-106) stated that credits for higher efficiency operation will allow cost-effective compliance and will encourage further development of existing control technologies.

Two commenters (A-90-19: IV-D-74; IV-D-108) recommended that credit be allowed for higher efficiencies based on the amount of emission reduction which is measurable and demonstrable (e.g., based on the accuracy of parametric monitoring or other data) and not on an arbitrary efficiency rating. Two commenters (A-90-19: IV-D-74; IV-D-108) suggested that the high cost of tracking averages will discourage sources from claiming insignificant increases in efficiencies.

Response: Reference control efficiency ratings for RCT were established because there is a minimum level of emissions reduction that can be achieved by each RCT. It is acknowledged that due to the different characteristics of emissions to be controlled, RCT can sometimes achieve greater emission reductions than predicted by the RCT's reference efficiency rating. However, the EPA still maintains that providing credits for these instances of better RCT performance is inappropriate for the same reasons stated in the proposal preamble.

First, the magnitude of debits, not just credits, is based on the RCT's reference efficiency ratings. Emission debits are calculated as the difference between the actual uncontrolled or undercontrolled emissions and the emissions if RCT had been installed. Of course, because debit generators are uncontrolled or undercontrolled, the actual control efficiency that would have been achieved by the RCT cannot be determined, so a reference control efficiency must be assumed. It is impractical to require continuous testing of the debit generator to determine the actual level of control that would be achieved if RCT were applied.

If it could be determined that the RCT on a debit generator could achieve greater reductions than its rated efficiency, the magnitude of debits from the point would be greater. Thus, to give credit for reductions above an RCT's rated efficiency and not to increase the magnitude of debits as well would represent a windfall from averaging. It would also result in a net increase in emissions over the level that would be expected if there were no emissions averaging. The policy of reference control efficiency ratings for RCT is fair as long as it is applied equally to debit and credit generators.

Second, to grant credits for the small amount of emission difference that might occur above a reference efficiency would lead to significant enforcement problems. It would be very difficult for a source to ensure that, on a continuous basis, an RCT achieves an emissions reduction above its reference efficiency rating. It would be even more difficult, if not impossible, for sources to prove to inspectors that they are in fact achieving these higher levels of efficiency. Use of a reference control efficiency for each RCT allows inspectors to simply check that the equipment is in place and operating as planned. Then, the implementing agency can check records to examine the calculation of debits and credits in order to make a compliance determination.

Hence, the use of reference efficiency ratings helps ensure that the emissions averaging system will result in the same or greater emission reductions as point-by-point compliance. In addition, the use of reference efficiency ratings simplifies the emissions averaging system, thus making it more easily enforced.

Allowing credits for reductions that go beyond a benchline standard (i.e., the reference control efficiency) is consistent with the concept of MACT. Although reference efficiencies have been established for the RCT's, the EPA does not consider it inconsistent to allow credit for higher efficiencies achieved by means other than the RCT's. If a source can achieve a higher control efficiency than a RCT through use of an alternative technology or pollution prevention measure, it is achieving more emission reduction than required by MACT. The source's alternative technology or pollution prevention measure may not have been established as MACT because MACT must be set for a source category, and as such, must be universally available for that source category. The fact that one source can employ control technologies that exceed MACT does not mean all sources can use the same technologies.

Comment: One commenter (A-90-19: IV-D-58) considered it acceptable to disallow credit for the use of control equipment above its designated reference efficiency rating except where a storage vessel is controlled with a closed-vent system with a control device and for process vents in certain circumstances.

On the other hand, one commenter (A-90-19: IV-G-1) considered it inconsistent to allow credit for 99.9 percent control of vents and 98 percent control of storage vessels using RCT's, but not to allow similar credits for other emission points that can document and maintain a level of control higher than the nominal efficiency. The commenter (A-90-19: IV-G-1) argued that credits should be allowed for operating RCT's above the nominal efficiency, and such credits are not "windfalls" because the source must commit to enforceable measures to assure the reductions are continuously achieved.

Response: The proposed rule allowed credit for the use of RCT's at higher efficiencies than their nominal efficiencies under certain conditions for process vents and storage vessels. Comment was requested on whether to allow credit for use of RCT's at higher efficiencies than their rated control efficiencies for all of the emission points allowed in emissions averaging. However, the EPA has decided not to include the proposed allowance in the final rule for the reasons stated in the previous response.

Comment: Two commenters (A-90-19: IV-D-74; IV-D-108) argued that in the cases where credit is allowed for the use of RCT at higher than rated efficiencies, parametric monitoring, as well as continuous emission monitoring, should be allowed.

One commenter (A-90-19: IV-D-34) objected to the provisions in proposed §§63.150(h)(6)(iii) and (iv) that require the control for process vents to achieve greater than 99.9 percent reduction to be allowable for a reduction efficiency greater than the RCT. The commenter (A-90-19: IV-D-34) complained that the requirement to achieve greater than 99.9 percent reduction is overly conservative and will make the emissions averaging program very difficult to use. The commenter (A-90-19: IV-D-34) suggested that the sections be changed to allow credit for achieving any efficiencies greater than the rated efficiency of the RCT.

Response: For the reasons previously stated, the proposed allowance to give credit for the use of RCT above its designated reference efficiency rating was not included in the final rule. Hence, the provisions for process vents to which one commenter referred have been removed. However, as stated in a previous response, if a control other than the RCT is used, and that control has an approved nominal efficiency greater than that of the RCT, the additional reduction is creditable in averaging.

2.5.3 Credits for Previous Actions

Comment: Several commenters (A-90-19: IV-D-9; IV-D-10; IV-D-11; IV-D-45; IV-D-49; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6; IV-D-87; IV-D-90; IV-D-99; IV-D-100; IV-D-118; IV-D-122; IV-D-123; IV-D-124; IV-D-125; IV-F-1.5; IV-F-7.23) opposed allowing credits for previous actions.

Six commenters (A-90-19: IV-D-9; IV-D-85; IV-D-99; IV-D-118; IV-D-124; IV-D-125) warned that allowing credits for previous actions will lead to double-counting and the creation of "paper credits." Six commenters (A-90-19: IV-D-9; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6; IV-D-87; IV-D-118; IV-D-124; IV-D-125) claimed that allowing such credits violates the maximum achievable reductions requirement.

In contrast, several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-50; IV-D-56; IV-D-62; IV-D-71; IV-D-73; IV-D-74; IV-D-78; IV-D-79; IV-D-80; IV-D-92; IV-D-108; IV-G-1) supported allowing credit for previous actions.

Three commenters (A-90-19: IV-D-32; IV-D-69; IV-D-73) considered it unfair to penalize sources that installed controls "too early" by not allowing credit, and argued that such early actions should be rewarded instead. One of the commenters (A-90-19: IV-D-32) declared that the test for allowing credit for prior reductions should be whether a reduction is otherwise required by another standard, not whether it would otherwise exist. The commenter (A-90-19: IV-D-32) complained that not allowing credit for preexisting controls could lead to discontinued control of Group 2 points because a source might decide to move the control equipment to a Group 1 point instead of purchasing new equipment.

Response: Credit is not allowed in the final rule for previous actions, i.e., actions taken prior to November 15, 1990, the date of passage of the 1990 Amendments to the Act. As stated in the proposal preamble, emission reductions from previous actions occurred for reasons unrelated to the Amendments (such as other State requirements) or this rule and are included in the source's control on the baseline date. If the EPA allowed reductions from previous actions to qualify for credits, then the source would be able to generate more debits and, thus, more total emissions than would be allowed under point-by-point compliance.

For this reason, not allowing credit for previous actions should not be considered unfair or a sort of penalty. Rather, the provision is necessary to maintain emissions averaging as an alternative means of compliance, achieving equal or greater reductions than the rule without averaging. Likewise, it cannot be considered a "reward" to allow credit for previous actions, which then enables a source to emit more pollution than would otherwise be allowed. Also, if a previous reduction was required by another State or Federal rule, the control can be used to meet the HON requirements for Group 1 points as long as the control is to the level that the HON specifies. However, the control cannot be used to generate emissions averaging credit.

It is possible that because no credit is allowed for previous actions, some owners and operators may choose to relocate existing controls from Group 2 points to other points instead of installing new devices as long as the controls on the Group 2 points were not required by other State or Federal rules. However, as long as the higher-emitting Group 1 points are controlled to the required level or reductions equivalent to controlling Group 1 points are achieved, the objective of the rule is realized.

Comment: Two commenters (A-90-19: IV-D-74; IV-D-108) suggested that disallowing credit for prior controls indicates that a source has a "baseline" level of control, and claimed that the concept of a baseline is incompatible with a technology-based standard. The commenters (A-90-19: IV-D-74; IV-D-108) considered it a contradiction that a control can meet MACT limits no matter when it was installed, but then is ineligible to generate emissions averaging credit. The commenters (A-90-19: IV-D-74; IV-D-108) did not agree that credit should not be allowed for prior reductions because they occurred for reasons unrelated to the rule. The commenters (A-90-19: IV-D-74; IV-D-108) also challenged the argument that allowing credit for prior actions enables a source to generate more emission debits and thus, more total emissions. The commenters (A-90-19: IV-D-74; IV-D-108) labeled this a risk-based analysis, which they claimed is also incompatible with a technology-based standard because total emissions are not properly the subject of a technology standard.

Response: It is true that the HON is a technology-based standard; however, emissions averaging has been established as an alternative means of compliance. In order to compare reductions under averaging to reductions that would have been achieved under point-by-point compliance, a baseline level of control must be established. The EPA has established that baseline level to be the controls existing at the time of the passage of the 1990 Amendments.

One commenter is correct that some existing controls, which may be used to comply with the rule without averaging, cannot be used in emissions averaging. This is not a contradiction, however, because averaging must achieve equivalent or greater reductions than point-by-point compliance. Also, in this case the requirement to achieve equivalent or greater reductions is not associated with risk-based analysis. Regardless of whether a standard establishes a limit on a total mass quantity or a percent reduction basis, total emissions must be compared to establish that averaging represents a truly equivalent option to point-by-point compliance.

<u>Comment</u>: Six commenters (A-90-19: IV-D-32; IV-D-33; IV-D-69; IV-D-73; IV-D-79; IV-D-86) argued that there should be no baseline date for credits. One commenter (A-90-19: IV-D-73) stated that RCT's placed on Group 2 storage vessels or transfer racks before November 15, 1990 are easily verifiable and sources should be able to obtain approval to credit them. Another commenter (A-90-19: IV-G-1) suggested that sources that have applied controls before 1990 for reasons other than the 33/50 Program (which is described in EPA Publication Number EPA-741-K-92-001) or Early Reductions Program should be allowed to take credit for such controls as long as they were voluntary. The commenter (A-90-19: IV-G-1) added that no other cutoff date in Title III of the 1990 Amendments turns on enactment. One commenter (A-90-19: IV-D-92) suggested that credit should be allowed for any non-federally enforceable reduction after January 1, 1987, which is the end of the first reporting year for SARA title III.

On the other hand, one commenter (A-90-19: IV-D-73) supported a baseline date of November 15, 1990 or earlier and stated that this date is far superior to the HON promulgation date for a baseline. The commenter (A-90-19: IV-D-73) was convinced that if the baseline date were the date of promulgation, many voluntary emission reduction projects would be put on hold until the relevant MACT standard is promulgated. The commenter (A-90-19: IV-D-73) suggested that the baseline date of November 15, 1990 would be environmentally neutral in that voluntary projects will not be inhibited, and credit would be allowed for many voluntary emission reduction projects because the bulk of such projects were implemented since 1990. The commenter (A-90-19: IV-D-73) recommended that the same baseline date should be applied to emissions averaging programs for other source categories as well.

Response: As stated in the proposal preamble, credit is allowed for controls put in place before the rule is promulgated but after the Amendments were enacted. Because the 1990 Amendments require the promulgation of emission standards, many sources began installing controls in anticipation of upcoming regulations. If these controls were not creditable in averaging and the rule as a whole, these sources would be at a disadvantage relative to other sources that chose to postpone emission reductions until required by rule. Thus, allowing credit for controls put in place since, and presumably because of, passage of the Amendments creates a more equitable emissions averaging system.

The EPA appreciates one commenter's support of the decision to establish November 15, 1990 as the baseline date. However, it should be noted that decisions for future NESHAP will be made on a specific source category basis. It should not be assumed that the inclusion of emissions averaging in this rule indicates that averaging will be allowed for other source categories. If averaging is included other rules, baseline dates will again be proposed, and public comment will again be solicited.

Comment: One commenter (A-90-19: IV-D-108) suggested that it was inconsistent to disallow credit for reductions from programs the EPA had encouraged such as the 33/50 Program, individual company reduction programs, and possibly the EPA's Early Reductions Program, all of which usually have baseline dates in 1987 or 1988. The commenter (A-90-19: IV-D-108) warned that disallowing credit will discourage companies from making reductions that are not immediately required by a rule. Another commenter (A-90-19: IV-D-69) supported allowing credits for the 33/50 Program to continue encouraging voluntary participation in future programs. A third commenter (A-90-19: IV-D-73) recommended allowing credit for emission points controlled as a part of the program initiated by the EPA Administrator in August 1989, which was the predecessor to the 33/50 Program. The commenter (A-90-19: IV-D-73) argued that at the time of making commitments to the predecessor program to the 33/50 Program, companies were assured by the EPA that the reductions would be creditable to the extent allowed by the Act. The commenter (A-90-19: IV-D-73) warned that such cooperative efforts could be undermined if credits are not allowed.

In contrast, two commenters (A-90-19: IV-D-90; IV-D-100) stated that emission reductions from the 33/50 Program, Early Reductions Program, or compliance with existing State regulations do not reflect actual emission reductions required by the HON and will result in double-counting of emission reductions. Two more commenters (A-90-19: IV-D-49; IV-D-85) considered the regulatory benefit of delayed compliance under the Early Reductions Program, combined with the public relations benefits and economic benefits of pollution prevention strategies sufficient incentive to encourage early control.

One of the commenters (A-90-19: IV-D-85) maintained that the EPA did not promise industry that voluntary reductions would be creditable toward future requirements, and the EPA does not have legal authority to do so. The commenter (A-90-19: IV-D-85) stated that crediting pollution prevention and 33/50 reductions conflicts with Congressional intent by crediting non-enforceable prior reductions for enforceable reductions made within certain dates. The commenter (A-90-19: IV-D-85) further maintained that Congress did not intend to authorize evasion of its limited Early Reductions policy by allowing credits for reductions that were not formally part of the program.

Response: As proposed, the rule disallowed credit for previous actions with three exceptions: (1) pollution prevention measures taken after 1987 and qualifying under the EPA's Pollution Prevention Strategy; (2) 33/50 commitments; or (3) Early Reductions commitments other than equipment shutdowns. However, in the final rule, these exceptions were deleted for the sake of consistency and to reduce some of the complexity of implementing the averaging program. One aspect of the proposal was retained; controls applied as part of an Early Reductions commitment can begin to generate credits only if the points were not controlled to comply with other State or Federal rules and only after the relevant point becomes subject to the rule, i.e., after the expiration of the 6-year extension for the Early Reductions source.

The proposal to allow three exceptions drew a great deal of negative public comment. Moreover, the EPA concluded that allowing credit for previous actions would actually provide little benefit to industry. In order to get credit, the measures taken under these programs would have to have been overcontrol of a Group 1 point or control of a Group 2 point, which are both unlikely. Instead, it is more common that a source controlled their largest-emitting Group 1 points to the reference control efficiency under an Early Reductions or 33/50 commitment. Thus, the EPA has concluded that there are probably very few previous actions taken under either program that could generate emissions averaging credit.

The EPA disagrees that not allowing these potential credits will discourage companies from making reductions that are not immediately required by future rules. Setting the baseline date as the Amendments enactment date instead of the rule promulgation date should provide some motivation for companies to make voluntary early reductions to comply with future NESHAP. Also, the commitments made under the three programs are creditable in the rule, but not in the strict sense of emissions averaging credit. Previous actions under these three programs or to comply with other State and Federal rules are creditable if they achieve the required level of emission reduction on a Group 1 point, that is if they satisfy the requirements of point-by-point compliance. But, as discussed previously, if these reductions were to be counted as emissions averaging credit, the source would emit more HAP's than would otherwise be allowed.

The EPA is committed to the success of the 33/50 and Early Reductions Programs and encourages the use of pollution prevention wherever feasible; this rule does not diminish that commitment. However, to allow emissions averaging credit for any prior reductions, regardless of the program with which they are associated, would result in less stringent compliance than the rule without averaging.

<u>Comment</u>: One commenter (A-90-19: IV-D-85) outlined an example where a facility controlled a non-exempt vent in 1988 and reduced the emissions from 1000 pounds of HAP's to 500 pounds. The commenter (A-90-19: IV-D-85) further hypothesized that under an emissions averaging plan the facility would elect not to control the non-exempt vent in exchange for additional control of an exempt emission point. The commenter (A-90-19: IV-D-85) maintained that the value of the debit would be 98 percent of 500 pounds (490 pounds), and if the plant had not made this prior reduction, its debit would have been 98 percent of 1000 pounds (980 pounds). The commenter (A-90-19: IV-D-85) concluded that the source's 500 pound pollution reduction reduces its obligation to the public by 990 pounds.

Response: It is assumed that by "non-exempt," the commenter refers to Group 1 emission points; "exempt" is taken to mean Group 2 points. The final rule does not allow credits for control measures taken prior to November 15, 1990, so this example no longer applies. Even so, it should be noted that the commenter calculated debits for this example incorrectly.

Debits are calculated as the difference between actual and allowable emissions from a point. In this example, debits would be generated by leaving a Group 1 process vent uncontrolled or undercontrolled. Allowable emissions for Group 1 points are the emissions that would result if RCT were applied. Even though the example process vent was controlled to 50 percent prior to November 15, 1990, because it is a Group 1 vent, the rule requires that current emissions be reduced by 98 percent. Hence, the allowable emissions from this Group 1 point are 20 pounds, i.e., 2 percent of its uncontrolled emissions, 1000 pounds. (See the provisions in §63.150(g) of the rule for calculating emissions averaging debits.)

If the existing control achieving a 50 percent reduction is maintained, the actual emissions from the vent would be 500 pounds, generating a debit of 480 pounds (500 pounds of actual emissions minus 20 pounds of allowed emissions). To balance the debit, the source would have to overcontrol another point or points by at least 480 pounds. If the existing control device is removed entirely, the debits would be 980 (1000 minus 20) pounds. In either case, it is incorrect to conclude that if the point is designated as a debit generator, the 50 percent control achieved in 1988 would reduce the source's obligation to the public by 990 pounds.

Comment: One commenter (A-90-19: IV-D-51) concurred with the conditions set for obtaining emission credits from previous actions, but could not support a plan that would accumulate credits over a period greater than the averaging compliance period.

Response: Presumably, the commenter was recommending that the rule not allow a source to bank credit from previous actions for use to balance future debits. The commenter's concern has been addressed by not allowing credit for previous actions and deleting credit banking from the final rule. The discussion of the deletion of credit banking from emissions averaging is found in section 2.11 of this BID volume.

Comment: One commenter (A-90-19: IV-D-45) questioned why credits were being allowed for prior emissions reductions on process units that are not covered under the HON rule.

Response: As discussed in section 2.4 of this BID volume, emissions from points in process units and sources that are not subject to the HON are not eligible for this emissions averaging program.

Comment: One commenter (A-90-19: IV-D-69) considered not allowing credit for prior reductions to be inconsistent with the Act because the Act defines "new sources" based on the date of NESHAP proposal.

Response: The commenter's claim was not clear regarding the relationship between the date new sources are defined and credit for previous actions. However, it is not inconsistent with the Act to disallow credit for previous actions, and as discussed in section 2.3.2 of this BID volume, in the final rule averaging is not allowed at new sources.

Comment: One commenter (A-90-19: IV-D-89) suggested that under the programs established by some States where a facility can register and agree to not produce above a certain level of emissions, the facility should be considered a credit generator.

Response: An entire source cannot be a credit generator; only emission points within sources can be used to generate credits and debits. If a source can generate more credits than debits overall, it still cannot be a net credit generator because averaging is not allowed between sources as discussed in section 2.4 of this document. A source that participates in a State program by agreeing to limit their total emissions can use emissions averaging to comply with the HON and with the program, but it is not within the scope of the HON emissions averaging program for a source to be a net credit generator.

2.5.4 Credit for Pollution Prevention and Recycling

Comment: Several commenters (A-90-19: IV-D-32; IV-D-50; IV-D-57; IV-D-69; IV-D-71; IV-D-72; IV-D-79; IV-D-80; IV-D-83; IV-D-86; IV-D-104; IV-D-106; IV-G-1) supported allowing credit for pollution prevention measures as an additional incentive for conducting such measures.

Two commenters (A-90-19: IV-D-32; IV-D-57) stated that pollution prevention is almost always a superior means of environmental protection. Three commenters (A-90-19: IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-104; IV-G-1) suggested that emissions averaging would encourage pollution prevention, which is expressly authorized as a control measure for reducing HAP emissions under section 112(d) of the Act. One commenter (A-90-19: IV-D-83) stated that without averaging, the use of pollution prevention could greatly decrease because pollution prevention projects may not be able to achieve the RCT efficiencies at each and every emission point, whereas if averaging is allowed, system-wide pollution prevention programs could be used to achieve compliance. The commenter (A-90-19: IV-D-83) added that EPA Administrator Carol Browner has, on several recent occasions, expressed her support for pollution prevention.

One commenter (A-90-19: IV-D-74) urged the EPA to develop a mechanism to allow the use of pollution prevention projects to achieve MACT because such a use in MACT is explicitly authorized in the section 112(d)(2) of the Act.

In contrast, one commenter (A-90-19: IV-D-103) opposed allowing credit for pollution prevention, and stated that the concept of pollution prevention is to prevent releases of a pollutant, rather than shifting the effects or impacts in time or space. One commenter (A-90-19: IV-D-44 and IV-F-7.28) objected to allowing the savings of pollution prevention measures as "loopholes" and favored requiring pollution prevention planning. Another commenter (A-90-19: IV-D-85 and IV-G-6) recommended that pollution prevention should be required in addition to reductions achievable through control of emission points. The commenter (A-90-19: IV-D-85) asserted that a system of comprehensive control with RCT that accepts pollution prevention as an alternative control mechanism will encourage environmentally beneficial pollution prevention far more effectively than emissions averaging.

Response: Credit is allowed for reductions achieved by a pollution prevention measure applied after November 15, 1990 to a Group 2 point or to a Group 1 point if the pollution prevention measure achieves reductions greater than what could be achieved using the RCT.

The EPA acknowledges that some of the emission reductions from a pollution prevention measure will be offset by emission increases elsewhere in the source if the pollution prevention measure is used to generate credit for an average. However, the EPA does not agree that emissions averaging interferes with the intent of pollution prevention by allowing emissions to be "shifted" instead of preventing their release altogether. The intent of pollution prevention is to reduce emissions in an economical and environmentally sound manner. Under emissions averaging, it does not matter how emissions are controlled so long as the level of reduction required by the rule is achieved.

Pollution prevention is a method to reduce emissions that is highly desirable because it often results in emission reductions in several media. The EPA encourages its use to the fullest extent; this emphasis in encouraging pollution prevention is one of the reasons for allowing the use of emissions averaging.

Comment: Two commenters (A-90-19: IV-D-32; IV-D-57) encouraged allowing pollution prevention credit for cases in which a source reduces its emissions by switching from production of one chemical to another.

One commenter (A-90-19: IV-D-85) recommended that pollution prevention be carefully defined and that the current exclusion of product switches from the definition is essential. The commenter (A-90-19: IV-D-85) maintained that companies will claim credits for product switches which would have occurred in any case without taking debits for product switches which increase pollution.

Response: The EPA solicited comment on whether credit should be granted if a source reduces emissions by switching from production of one chemical to another. For the final rule, the EPA has maintained the policy that a process conversion that qualifies as a pollution prevention measure as defined in the EPA's Pollution Prevention Strategy (56 FR 7849; February 26, 1991) and occurs after November 15, 1990 is eligible for credit. To qualify under the pollution prevention strategy, the process must be used to make the same product before and after the pollution prevention conversion. It should be noted that only two commenters expressed interest in generating credit by switching products and neither provided sufficient information to convince the EPA that the rule should differ from its Pollution Prevention Strategy.

Comment: Four commenters (A-90-19: IV-D-74; IV-D-98; IV-D-104; IV-D-108) argued that for Group 1 emission points, requiring pollution prevention projects to result in emission reductions greater than that available through RCT was too limiting, and recommended that credit be allowed for reductions achieved through pollution prevention if they are comparable to RCT or if they are substantial. Three commenters (A-90-19: IV-D-74; IV-D-83; IV-D-108) explained that a reduction of 98 percent or better from pollution prevention is infrequent. Three commenters (A-90-19: IV-D-74; IV-D-104; IV-D-108) suggested that the more likely example is when an emission point with existing controls undergoes pollution prevention to achieve a 98 percent reduction. Four commenters (A-90-19: IV-D-74; IV-D-83; IV-D-104; IV-D-108) argued that not allowing credit in such situations will discourage pollution prevention for already controlled emissions sources.

Response: Pollution prevention measures at Group 1 points are treated the same as control measures. Where they achieve less reductions than the RCT, they can be included in an emissions averaging on debit-generating points. Where they achieve reductions equivalent to the RCT, they can be used for compliance but not as a credit-generating point. Where they achieve greater reductions than the RCT, they can serve as a credit generator. The system thereby encourages all types of pollution prevention measures.

A pollution prevention measure in conjunction with add-on controls achieving greater reductions than RCT is also eligible for emissions averaging credit. An example of this was presented in the proposal preamble in which a pollution prevention process change reduces the annual amount of wastewater a source generates by 50 percent. Then, an add-on control (which happens to be the wastewater RCT in the example, but need not be) is applied, and the emission reduction from the two combined exceeds the reduction achievable by the RCT only. The surplus reductions over that achievable by the RCT can be used for credits in emissions averaging.

There is a significant difference between the proposed and final rule, however. In the example in the proposal preamble, the pollution prevention measure was applied in 1988, prior to the baseline date. In the final rule, this previous action is no longer creditable; it is counted in the baseline level of control for the source. Thus, assuming the wastewater stream remains a Group 1 point even with the 50 percent flow reduction achieved by the pollution prevention measure, the RCT must still be applied.

Comment: Several commenters (A-90-19: IV-D-32; IV-D-57; IV-D-69; IV-D-72; IV-D-79; IV-D-80; IV-D-86; IV-D-104; IV-D-106; IV-G-1) supported allowing credit for recycling as an incentive for conducting such measures. Five commenters (A-90-19: IV-D-32; IV-D-57; IV-D-69; IV-D-98; IV-D-104) considered the definition of pollution prevention in the EPA's Pollution Prevention Strategy too narrow, and suggested that out-of-process as well as in-process recycling should be considered pollution prevention and eligible as a credit generator.

One commenter (A-90-19: IV-D-32) suggested that between the enforceability aspects of including recycling in the Title V operating permit program and the quantification aspects of the HON and the Early Reductions Rule, quantification of reductions from recycling is fully workable.

One commenter (A-90-19: IV-D-51) was hesitant to endorse credits generated from recycling activities because recycling activities may require collection activities off-site, and it may be difficult to account for all emissions associated with the recycling activities. The commenter (A-90-19: IV-D-51) stated that recycling credit may work if it can be shown that the recycling activity was self-contained.

Response: The EPA requested comment on the issue of allowing credits for recycling activities that can result in quantifiable emission reductions. In the final rule, since in-process recycling is a pollution prevention measure, it can be used to generate credits. Credits would be calculated as provided in the rule for any pollution prevention measure.

On the other hand, it has been determined that emission reductions from out-of-process recycling, which is not a pollution prevention measure, cannot be included in emissions averaging because out-of-process recycling is out of the jurisdiction of this rule. Out-of-process recycling involves waste management outside of the HON source, and is thus not subject to this standard.

2.5.5 Plant Shutdowns and Slowdowns

Comment: Six commenters (A-90-19: IV-D-33; IV-D-56; IV-D-58; IV-D-62; IV-D-92; IV-D-98) urged the EPA to allow credit for production cutbacks or plant shutdowns. One commenter (A-90-19: IV-D-56) claimed that allowing credit was appropriate for cutbacks or shutdowns that are part of an Early Reductions commitment.

Two commenters (A-90-19: IV-D-58; IV-D-62) disagreed with the argument that credit should not be allowed because shutdowns would have happened anyway. One commenter (A-90-19: IV-D-58) argued that most shutdowns occur for a combination of reasons. Another commenter (A-90-19: IV-D-62) added that it is doubtful that a plant shutdown is ever a foregone conclusion.

Two commenters (A-90-19: IV-D-58; IV-D-62) argued that even if a shutdown were to occur regardless of any MACT standard, there is still a net benefit from the reduction in emissions. One commenter (A-90-19: IV-D-62) reasoned that these reductions should qualify for credit just as they do according to the 1986 Emissions Trading Policy Statement and in the EPA's 33/50 Program. Moreover, the commenter (A-90-19: IV-D-62) stated that neither the EPA's Pollution Prevention Strategy nor the Act excluded or discouraged the use of permanent shutdowns as a method of reducing emissions.

One commenter (A-90-19: IV-D-58) recommended that permanent shutdowns after MACT promulgations should be creditable with a 5 year lifespan, discounted at a straight-line rate of 20 percent per year after the first year. The commenter (A-90-19: IV-D-58) suggested that one mechanism to achieve this is to credit shutdowns as part of "banking." The commenter (A-90-19: IV-D-58) further recommend that shutdowns associated with an approved Early Reductions, pollution prevention, or 33/50 Program should be creditable for the emissions averaging program based on recent actual emission estimates.

One commenter (A-90-19: IV-D-51) commended the EPA for not allowing shutdowns to generate credits. One commenter (A-90-19: IV-D-85) stressed that neither permanent closures nor maintenance shutdowns should generate credits because they will occur from time to time regardless of environmental decisions.

Response: It is not appropriate to allow credit in emissions averaging for permanent shutdowns or slowdowns even if they are part of an Early Reductions commitment under section 112(i)(5) of the Act. No matter what the motivation for a shutdown or slowdown, the emission reductions from the production curtailment are not made permanent if emissions averaging credit is allowed. If credit were granted for the emission reduction, the source could then emit an equal amount of emissions from its debit generators. This is in contrast to point-by-point compliance, where if a point is shut down, the emissions reduction is permanent. To allow credit in emissions averaging for permanent shutdowns and slowdowns results in less stringent compliance and more total emissions than point-by-point compliance, in which case emissions averaging does not represent an equivalent compliance alternative.

2.5.6 Approval Process for New Control Technologies

Comment: One commenter (A-90-19: IV-D-74) suggested that where innovative control technology is submitted for approval as a reference technology, the EPA should provide procedures to account for the uncertainties encountered such as during development of the technology from pilot to full scale. The commenter (A-90-19: IV-D-74) added that if the approved innovative technology does not achieve the assigned efficiency rating, the source should be allowed adequate time to come into compliance.

Response: Development of an innovative control technology from pilot to full scale should be completed before the technology is submitted for approval as an alternative to RCT. The owner or operator seeking permission to take credit for a new technology must be sufficiently confident of the technology so that upon installation, it will immediately comply fully with the rule. Moreover, the source must be able to demonstrate ongoing compliance according to the provisions of the rule. Development of new control technologies is, of course, desirable; however, development cannot interfere with attainment of the standard, especially when proven technologies (i.e., the RCT's) are available.

Comment: Two commenters (A-90-19: IV-D-74; IV-D-108) suggested that approval of new technologies for a specific source should be independent of the approval for nationwide use because the control technology may be highly chemical-specific, and its use in more than three applications at a particular source does not necessarily mean that the technology is widely applicable. The two commenters (A-90-19: IV-D-74; IV-D-108) were concerned that a source should not be delayed in its application of the technology pending review of the technology for wider applicability.

Response: The effectiveness of innovative control technologies that are different either in use or design from

RCT must be demonstrated prior to their use. If a source wishes to use a new technology in more than three applications, the EPA must approve the new technology and assign it a nominal control efficiency. Also, EPA approval constitutes approval of broad applicability, that is, use of the new technology by any source subject to the rule.

If a new technology would be used in no more than three applications in a given facility, the permitting authority, instead of the EPA, can assign it a nominal control efficiency. If the permitting authority feels the new technology may have broad applicability beyond the three or fewer applications for which it was submitted, the permitting authority must forward the information about the technology to the EPA. However, any subsequent EPA review of the technology will be performed in parallel with the approval of the nominal control efficiency by the permitting authority and will not affect or delay the approval process. Once the permitting authority has approved the nominal control efficiency of the technology for compliance, the source can proceed with installing and operating the technology.

Thus, if a new technology can be used in more than three applications, the EPA will be involved in the nominal control efficiency approval. Review for broad applicability is a separate issue and again, it will never delay the nominal control efficiency approval process. But for other than site-specific innovations, the EPA intends to maintain a close oversight of new technologies that have promise as future reference control technologies.

Comment: Two commenters (A-90-19: IV-D-56; IV-D-74) argued that the procedure for approving new technologies provided an excessive amount of time, 120 days, to determine data sufficiency. One commenter (A-90-19: IV-D-56) noted that the completeness and adequacy review periods for PSD are not even this long. The other commenter (A-90-19: IV-D-74) recommended that the period should be reduced from 120 days to within 30 days. The commenter (A-90-19: IV-D-74) recommended that the rule should allow a source to proceed with an alternative control upon approval rather than requiring the source to wait for the notice in the Federal Register.

Response: The EPA considers it necessary and responsible to be deliberate in considering new technologies especially when proven RCT's are available. As such, it is not excessive to reserve 120 days to consider the sufficiency of the data and 120 days more to approve the nominal control efficiency for never-before-seen technologies. Moreover, the EPA considers it reasonable to use a published notice in the Federal Register to alert the regulated community that a new RCT is available when the new technology has broad applicability because a widespread understanding of new technologies could lead to further control advancements. However, use of the approved new technology will not be delayed.

Comment: One commenter (A-90-19: IV-D-74) recommended that the use of more than one control in series should be allowed for MACT compliance if the total reduction equals or exceeds the required percentage reduction.

Response: A combination of control devices or techniques is allowed for compliance. If a source can achieve or exceed an RCT's rated efficiency by using a combination of control devices, such a strategy can be used to generate credits in emissions averaging from Group 1 points. If further reductions can be obtained by adding more controls to a Group 1 point that already has RCT installed, the surplus reductions are eligible for emissions averaging credit as well. Of course, any combination of technologies or the use of RCT below its rated efficiency may be used to control a Group 2 point for emissions averaging credit.

Comment: One commenter (A-90-19: IV-D-51) requested further guidance in determining when the permitting authority (rather than the EPA) has the authority to assign reference efficiency ratings for new control technologies. The commenter (A-90-19: IV-D-51) was concerned that the mechanism for determining the reference efficiency must be a timely process in order not to discourage innovative methods for HAP control. The commenter (A-90-19: IV-D-51) suggested that a mechanism and schedule for new control technology approval be contained in the final rule.

Response: As discussed previously, the rule provides that where a new control technology is to be used in no more than three applications at a single plant-site, the permitting authority can approve its use and assign its nominal efficiency. The permitting authority shall refer a technology to the EPA if it believes that the new technology has broad applicability. The determination of "broad applicability" is a case-by-case decision, and the elements of that determination are left to the discretion of the permitting authority.

When a new technology is forwarded to the EPA for further review of broader applicability, the rule provides that the EPA's review shall not affect the permitting authority's approval of the nominal efficiency. Whether the permitting authority or the EPA is responsible for reviewing a particular application of a new technology, the same amount of time is allocated for review of the submittal, i.e., 120 days to determine if sufficient information has been provided and 120 days more to review and approve the new technology for use. This process is intended to encourage innovation in control technologies by establishing a relatively low approval hurdle. Thus, the commenter's concern for a timely approval process and schedule should be satisfied.

Comment: One commenter (A-90-19: IV-D-56) disagreed with the proposed approach for approval of new technologies claiming it duplicates the anticipated State construction permit program. The commenter (A-90-19: IV-D-56) recommended that the EPA defer all construction approval review and approval responsibility to the appropriate State in an effort to avoid duplicative regulatory programs.

Response: The commenter's reference to an "anticipated State construction permit program" was not clear. The HON has been designed to be compatible with the operating permit program rule. If a State wishes to use an existing State construction permit program to approve new technologies for the HON, it is free to do so, assuming all of the procedures specified in the rule are followed. Thus, the approval process need not be duplicative. However, the EPA will not delegate the authority for approval of new technologies to States that do not have an approved operating permit program in place.

2.6 CREDIT DISCOUNT FACTORS

Comment: Eight commenters (A-90-19: IV-D-9; IV-D-45; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6; IV-D-99; IV-D-115; IV-D-118; IV-D-124; IV-D-125) supported the use of discount factors in emissions averaging.

Several commenters (A-90-19: IV-D-32; IV-D-50; IV-D-57; IV-D-58; IV-D-62; IV-D-69; IV-D-71; IV-D-72; IV-D-73; IV-D-74; IV-D-75; IV-D-77; IV-D-78; IV-D-79; IV-D-82; IV-D-83 and IV-F-1.3 and IV-F-1.5; IV-D-86; IV-D-89; IV-D-92; IV-D-97; IV-D-104; IV-D-106; IV-D-108; IV-F-1.6 and IV-F-6; IV-G-1) opposed the use of discount factors (i.e., supported a zero percent discount factor) in emissions averaging.

Response: A discount factor of 10 percent is required in calculating credits in the final rule. An exception is provided for reductions accomplished by the use of pollution prevention measures. For pollution prevention measures, full credit with no discounting is allowed. At proposal, the EPA sought comment on whether it is appropriate to require the use of a credit discount factor and what value between 0 to 20 percent should be selected for the discount factor. Specific aspects of the decision to include a credit discount factor are addressed in the remainder of this section.

Comment: A number of commenters (A-90-19: IV-D-32; IV-D-57; IV-D-58; IV-D-62; IV-D-71; IV-D-72; IV-D-74; IV-D-75; IV-D-77; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-95; IV-D-97; IV-D-98; IV-D-106; IV-D-108; IV-F-1.6 and IV-F-6) argued that discount factors would reduce, and could completely eliminate, the incentive to achieve compliance through emissions averaging. One commenter (A-90-19: IV-D-58) stated that facilities with very high cost MACT installation requirements compared to other facilities in the same source category are the facilities for which emissions averaging was primarily intended. The commenter (A-90-19: IV-D-58) contended that a discount factor could defeat the purpose of the emissions averaging program by preserving the competitive disadvantage of these facilities. Two commenters (A-90-19: IV-D-32; IV-D-57) maintained that the cost savings associated with the use of averaging for those points is potentially critical to individual sources, even if the actual number of points and quantity of emissions involved are relatively small.

Two commenters (A-90-19: IV-D-32; IV-D-57) argued that there will not be many opportunities to generate credits because Group 2 points are by definition the ones with the lowest emissions, and the burden of the recordkeeping and reporting requirements provides an additional disincentive. One commenter (A-90-19: IV-D-62) claimed that when the EPA mentioned three variable discounting options in the proposal preamble, it stated the most compelling argument against discounting, which is that discounting "would greatly increase the administrative complexity of emissions averaging, reducing its workability." Three commenters (A-90-19: IV-D-32; IV-D-33; IV-D-57) predicted that sources will reserve the use of averaging for when RCT is not practicable because these instances will be the most costly for the marginal emission reduction. Two commenters (A-90-19: IV-D-32; IV-D-57) concluded that the additional social and economic cost imposed by a restriction or loss of the averaging alternative will far outweigh any marginal emission reduction derived from the use of a discount factor.

Response: The EPA acknowledges that a credit discount factor will make averaging of points with marginal differences in cost effectiveness unlikely. However, the EPA disagrees with commenters that a discount factor could completely eliminate the incentive to achieve compliance through emissions averaging.

The goal of emissions averaging is not to enable sources to reduce their overall compliance costs to the industry average, or to gain a competitive advantage. Rather, the purpose of averaging is to allow sources to comply with the rule in the least costly manner for their site-specific situation. Sources will definitely realize cost savings using emissions averaging instead of installing RCT; otherwise, they will not use emissions averaging. The purpose of a discount factor, then, is to ensure that the emission points selected for averages are the ones where truly significant cost savings can be realized and to share this savings with the environment.

Comment: Two commenters (A-90-19: IV-D-85; IV-D-99) supported a discount factor because industry will enjoy a cost savings from complying through averaging and the environment should also benefit from the flexibility and cost savings. One commenter (A-90-19: IV-D-85) stated that if a given level of reductions is deemed achievable without emissions averaging, then a higher level must be possible with emissions averaging, because emissions averaging supposedly lowers costs.

On the other hand, several commenters (A-90-19: IV-D-32; IV-D-57; IV-D-62; IV-D-69; IV-D-74; IV-D-75; IV-D-92; IV-D-97; IV-D-104; IV-D-108; IV-G-1) considered a discount factor to be inconsistent with the statutory intent that MACT be implemented in a flexible and cost-effective fashion. Several commenters (A-90-19: IV-D-32; IV-D-57; IV-D-62; IV-D-72; IV-D-75; IV-D-77; IV-D-89; IV-D-104; IV-D-106; IV-G-1) submitted that as long as the EPA correctly identifies the appropriate level for MACT in the first place, no additional "price" or penalty should be imposed for allowing sources to achieve that level in the most efficient manner possible. Three commenters (A-90-19: IV-D-32; IV-D-57; IV-D-73) did not regard a discount factor as an appropriate "price" for savings gained from emissions averaging. The commenters (A-90-19: IV-D-32; IV-D-57; IV-D-73) stated that averaging will be used for emission points whose control is impractical or substantially more costly than the average, so emissions averaging with a discount factor will not provide opportunities to avoid the normal costs of applying RCT.

<u>Response</u>: As stated previously, the EPA accepts the rationale for using a credit discount factor that the environment should also benefit from cost savings achieved through emissions averaging.

The use of a discount factor is not inconsistent with the Act nor does it represent a "price" or penalty for using averaging. Emissions averaging is an alternative method for complying with the MACT standard that offers flexibility and the opportunity to apply a more cost-effective control option for compliance. Sources are able to lower their control costs for the points included in the average below the cost required to comply on a point-by-point basis. The decision to include a discount factor recognizes that a portion of the cost savings could be used to benefit the environment, i.e., to achieve more emission reductions than is required under point-by-point compliance.

The EPA does not consider sharing a 10 percent portion of savings with the environment to be so great a disincentive to dissuade many sources from choosing to use averaging. Sources will always realize lower control costs under averaging versus point-by-point compliance. If this were not so or if the source does not consider the cost savings substantial enough, the option of emissions averaging would not be selected.

Comment: Five commenters (A-90-19: IV-D-58; IV-D-72; IV-D-83; IV-D-106; IV-G-1) predicted that a discount factor will discourage the implementation of innovative control technologies. One commenter (A-90-19: IV-D-58) was concerned that discouraging innovation would slow the progression of MACT standards over time. Two commenters (A-90-19: IV-D-83; IV-D-89) added that pollution prevention would also be discouraged. One of the commenters (A-90-19: IV-D-89) claimed that voluntary pollution prevention would be discouraged because a discount factor would penalize sources that spend money on pollution prevention efforts and cause competitive disadvantage. One commenter (A-90-19: IV-G-1) recommended that no discount factor should be applied to pollution prevention measures.

In contrast, one commenter (A-90-19: IV-D-85) stated that a lower discount factor for pollution prevention is not appropriate, because pollution prevention can be more difficult to quantify and less expensive than other types of pollution control.

Response: Credits generated by pollution prevention measures are not discounted in the final rule. The EPA is not concerned that a discount factor would discourage the use of pollution prevention or any other type of control that could achieve significant cost savings. Rather, no discount factor is being applied to pollution prevention to identify it as the preferred method of achieving emission reductions and thus encourage its use.

Only measures that qualify as pollution prevention activities according to the EPA's Pollution Prevention Strategy are considered pollution prevention measures under the rule and therefore are not discounted. The emissions reductions from these measures are fully quantifiable. The EPA cannot confirm one commenter's suggestion that pollution prevention measures are less expensive to implement than other types of controls; the commenter provided no accompanying data. The EPA does not share the concern that the discount factor selected for the final rule will discourage the development of innovative control technologies because the value of the discount factor is small. The EPA expects that new technologies that can reduce emissions more than existing technologies, and do so more cost-effectively, will be developed and implemented regardless of the application of a small discount factor.

Comment: Four commenters (A-90-19: IV-D-32; IV-D-57; IV-D-74; IV-D-77) suggested that because of the differences between the current situation and past situations in which discount factors have been used in emissions averaging, such as offsets to avoid new source control requirements in nonattainment areas, the discount factor is not relevant here. One commenter (A-90-19: IV-D-97) added that because the use of discount factors is covered in the section of the Act dealing with nonattainment of NAAQS, applying one in this rule amounts to double discounting and an unfair penalization. The commenter (A-90-19: IV-D-97) suggested that a discount factor should only apply where good performance has not been maintained. One commenter (A-90-19: IV-G-1) argued that a discount factor is inconsistent with the proposed Economic Incentive Program rules (58 FR 11110, February 23, 1993). One commenter (A-90-19: IV-D-70) stated that basing the discount factor on the Emission Trading Policy Statement for nonattainment areas is not appropriate because impacts of HAP emissions are localized and result in short-term, acute effects, whereas nonattainment issues are a more general problem in areas with long-term goals of attaining the NAAQS.

Response: Although discount factors are used in other programs, the rationale for their use and their implementation can vary from program to program. Thus, differences between this and past situations are acknowledged and expected. Even though the reasons for using a discount factor in this rule may be different from other regulatory programs, its use is still relevant. As such, the use of a discount factor need not comport with any provisions of the New Source Review program, the Emission Trading Policy Statement, or the proposed Economic Incentive Program rules.

Comment: One commenter (A-90-19: IV-D-99) supported a discount factor because emissions estimates are highly imprecise.

However, four commenters (A-90-19: IV-D-32; IV-D-57; IV-D-74; IV-D-108) disagreed with the argument that discount factors are needed to address uncertainties in the averaging calculation that could lead to control less stringent than MACT. Four commenters (A-90-19: IV-D-32; IV-D-57; IV-D-74; IV-D-108) argued that the extreme detail required to calculate an average and the increased monitoring and reporting required will result in more certainty, not less. Two commenters (A-90-19: IV-D-72; IV-D-106) suggested that it would be technically more valid for a source to include considerations of estimation uncertainty in the credit and debit calculation. One commenter (A-90-19: IV-G-1) stated that discount factors should apply only in cases of demonstrated greater-than-average uncertainty.

Response: The EPA is confident that the estimation methodologies are suitable for calculating debits and credits and are equivalent and fully interchangeable. The EPA does not consider the estimates highly imprecise as one commenter suggested. The EPA does not rest the justification for using a discount factor nor the value of the discount factor chosen on the need to account for estimation uncertainty. A more detailed discussion of the emission estimation procedures for averaging can be found in section 2.11.4 of this BID volume.

Comment: Six commenters (A-90-19: IV-D-32; IV-D-50; IV-D-57; IV-D-73; IV-D-74; IV-D-108) argued that a great deal of inherent conservatism is built into the emissions averaging rules, and that this conservatism acts as a built-in discount factor to compensate for any possible uncertainty in debit and credit calculations. Five commenters (A-90-19: IV-D-32; IV-D-57; IV-D-73; IV-D-74; IV-D-108) listed not allowing credit in most instances for control efficiencies above RCT as one example of inherent conservatism. Eight commenters (A-90-19: IV-D-32; IV-D-50; IV-D-57; IV-D-69; IV-D-73; IV-D-74; IV-D-78; IV-D-108) suggested another example of inherent conservatism is that most sources will strive to maintain excess credits for use in balancing their annual averages. Two commenters (A-90-19: IV-D-74; IV-D-108) indicated that for an operation with significant complexity and variability, such as a batch operation, the excess credit cushion may need to be substantial. Another commenter (A-90-19: IV-D-73) suggested that banking of excess credits would also be a built-in safety factor.

Response: The EPA recognizes that conservative practices are sometimes employed by sources when complying with standards. Disallowing credit for RCT operating above its rated efficiency is not an example of inherent conservatism because the higher efficiency is not attributed to the debit generator as well. Also, one commenter's suggestion that banked credits can act as a built-in safety factor is not valid since banking is disallowed in the final rule. The exclusion of banking is discussed in section 2.10 of this BID volume.

The use of conservative practices is prudent, and sources are encouraged to avoid any possibility of compliance violations. However, since conservative practices are not required by the rule, the entire industry cannot be counted on to use them. Inherent conservatism also does not address the issue of whether cost savings realized through the use of emissions averaging should be shared with the environment. Even if it could be assumed that all sources would build in a safety factor, a discount factor ensures that a specific amount of emissions reductions will go to the environment in exchange for cost savings.

Comment: Two commenters supported the use of a small discount factor in the range of 0-5 percent (A-90-19: IV-D-67), and 5 percent (A-90-19: IV-D-56), to address the general concerns cited in the proposal preamble while maintaining both the incentive for emissions averaging and a simple program to implement. One commenter (A-90-19: IV-D-56) added, however, that if sources are actually monitored with CEM's, no discount factor should apply.

Eight commenters (A-90-19: IV-D-9; IV-D-45; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-99; IV-D-118; IV-D-124; IV-D-125) stated that if an averaging scheme is retained, it must use a substantial discount factor. One commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) maintained that the maximum achievable emissions reduction standard requires that discount factors be set as high as possible without discouraging trading completely.

Response: A discount factor of 10 percent was selected for the final rule as one that provides a benefit to the environment yet maintains the incentive for emissions averaging. No discount factor is to be applied for pollution prevention measures.

The commenter who suggested that a discount factor is unnecessary if CEM's are used was probably referring to the proposal to allow credit for the use of RCT above its rated efficiency on process vents. The proposal, which was deleted from the final rule, required the use of CEM's in order to get credit. The suggestion of CEM's pertains to the issue of uncertainty of emissions estimation in averaging, and as stated previously in this section, the discount factor is not included to address uncertainty.

Comment: Several commenters (A-90-19: IV-D-9; IV-D-45; IV-D-51; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-99; IV-D-118; IV-D-124; IV-D-125) suggested that the discount factor should take into account considerations such as: the range of uncertainty of the emissions estimation method (especially for wastewater); the toxicity of pollutants; wastewater emissions; emission points with large marginal cost of control differences; cost savings; engineering estimates or non-specialized monitoring; differences in the frequency and type of monitoring among emission points; differences in dispersion characteristics between emission points; or granting a benefit to the environment.

One commenter (A-90-19: IV-D-51) suggested that the rule establish a procedure for determining discount factors on a site-specific basis, which can then be applied to each individual emission point. The commenter (A-90-19: IV-D-51) contended that considering other factors when developing a discount factor for individual emission points would not increase the regulatory burden.

Response: Designing the discount factor to account for all of the considerations suggested by commenters would have necessitated a very complicated mechanism. Instead, a single value for the discount factor was selected with simplicity of implementation in mind. It should not add any complexity to include the discount factor in the calculations of credits. Also, it should not be an added burden for the source or authorizing agency to single out pollution prevention measures as credits that are not discounted. Pollution prevention measures must be specifically approved for use anyway, and calculation of credits from their use will probably be highlighted in the emissions averaging plan.

Comment: One commenter (A-90-19: IV-D-85) suggested that the discount factor be based on three components: the "marginal cost differential component", the "gaming component", and the "volume discount component." The commenter (A-90-19: IV-D-85) described their "marginal cost differential component" as a system where operators retain the minimum savings over what they would achieve by point-by-point compliance necessary to allow the trade to occur and that this savings rate should be a constant. The commenter (A-90-19: IV-D-85) stated that the "gaming component" factor should be higher when trades between different processes occur, taking into account differences in hours of operation. The commenter (A-90-19: IV-D-85) maintained that the "volume discount component" was needed when the number of emission points involved in a trading scheme increases. The commenter (A-90-19: IV-D-85) contended that a volume discount factor will focus industry efforts on the points offering real savings instead of simply using the rule's emissions averaging provisions to avoid enforcement of emission standards. The commenter (A-90-19: IV-D-85) summarized the suggested discount factor in the following equation:

$$D = D(1) + P + D(w) + D(v) + D(tr) + D(st) + KV$$

where:

D = The overall discount factor.
D(1) = The discount factor component based on marginal cost differentials.

P	=	A percentage factor to adjust the rates between the highest and lowest producing process trains in the average.
D(w)	=	A factor compensating for uncertainties of wastewater emissions estimation.
D(v)	=	An uncertainty factor for vents.
D(tr)	=	An uncertainty factor for transfer racks.
D(st)	=	An uncertainty factor for storage vessels.
K	=	Constant.
V	=	The number of emission points in the average greater than two.

Response: The concerns embodied in the commenter's suggestions have been addressed elsewhere in the rule so that the commenter's recommended methodology for developing a discount factor is unnecessary. The EPA acknowledges the basis for the three areas of concern: sharing cost savings with the environment, minimizing gaming, and limiting the number of points involved in averages. The main rationale for the selection of 10 percent for the discount factor is that it represents a reasonable portion of the cost savings to share with the environment without discouraging the use of emissions averaging. The potential for gaming is minimized through the use of consistent emissions estimation techniques, which is discussed further in section 2.11.4 of this BID volume. Finally, as explained in section 2.8.5 of this BID volume, a provision has been added to the final rule limiting the number of points allowed in averages to 20, or 25 if pollution prevention is used.

Hence, the commenter's concerns have been addressed without adding tremendous complexity to the administration of the emissions averaging program by requiring a discount factor calculation. The EPA considers its selection and use of a single value for the discount factor a simple but effective means of sharing some cost savings with the environment.

Comment: Two commenters (A-90-19: IV-D-90; IV-D-100) maintained that the discount factor range of 0 to 20 percent does not take into account the potential interactive effects from exposure to chemical mixtures and potential for underestimating public health impacts.

Response: The EPA has concluded that a discount factor is not the appropriate mechanism for accounting for health risks because of the potential complexity that such a mechanism could introduce. Moreover, the issue of health risk that might be posed by emissions averaging has been addressed by including a new provision that sources must demonstrate to the satisfaction of the implementing agency that their emissions average will not increase risk or hazard. Discussion of whether and how risk should be taken into account in emissions averaging can be found in section 2.9 of this BID volume. Specific discussion of the new provision in the final rule for making risk equivalency demonstrations is included in section 2.9.6 of this BID volume.

2.7 COMPLIANCE PERIOD

2.7.1 Averaging Period

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-57; IV-D-58; IV-D-62; IV-D-72; IV-D-73 and IV-G-11; IV-D-74; IV-D-79; IV-D-82; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-86; IV-D-92; IV-D-106; IV-D-108; IV-F-1.6 and IV-F-6; IV-G-1; IV-K-2; IV-K-6; IV-K-7; IV-K-14; IV-K-19; IV-K-20; IV-K-21; IV-K-25; IV-K-27; IV-K-33; IV-K-34; IV-K-35; IV-K-39; IV-K-42; IV-K-45; IV-K-47; IV-K-49; IV-K-50; IV-K-53; IV-K-56; IV-K-61; IV-K-62; IV-K-66) on the proposed rule and supplemental notice supported an annual compliance period for balancing averages.

Four commenters (A-90-19: IV-K-19; IV-K-21; IV-K-39; IV-K-66) argued that an annual period was needed for source flexibility. Several commenters (A-90-19: IV-D-58; IV-D-73 and IV-G-11; IV-D-74; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-108; IV-G-1; IV-K-6; IV-K-19; IV-K-21; IV-K-42; IV-K-56; IV-K-62; IV-K-66) promoted it as necessary to accommodate fluctuations in operational processing and production levels at facilities. One commenter (A-90-19: IV-G-11) provided a record of the monthly production of one SOCMI chemical at one of their plants to illustrate fluctuation in production rate and support this claim. Two commenters (A-90-19: IV-K-33; IV-K-66) advised that annual periods are enforceable, and that batch processes, which result in variable emissions, must have a longer compliance period than those proposed.

Two commenters (A-90-19: IV-D-32; IV-D-57) claimed that it would be impossible in many situations to compute debits and credits over periods shorter than 30 days. Four commenters (A-90-19: IV-D-32; IV-D-57; IV-D-58; IV-D-92) claimed that because of variability in operating conditions and rates, a compliance period of significantly longer than 30 days is required to make averaging a practical option. One commenter (A-90-19: IV-G-11) was concerned that because credits could decline during periods of lower production (and lower emissions) at the credit-generating process unit, unplanned decreases or stoppage of production could cause violation of the average with a shorter averaging period. The commenter (A-90-19: IV-G-11) added that on the other hand, a longer averaging period provides an opportunity for a source to take steps to increase credits or decrease debits to regain the required balance.

Two commenters (A-90-19: IV-D-32; IV-D-57) considered it well within the EPA's discretion to establish quarterly and annual compliance periods because section 112(d) of the Act says nothing about the period over which the required emissions reductions must be achieved and demonstrated.

In contrast, several commenters (A-90-19: IV-D-9; IV-D-41; IV-D-49; IV-D-51; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6; IV-D-87; IV-D-99; IV-D-115; IV-D-117 and IV-F-7.43; IV-D-118; IV-D-124; IV-D-125; IV-F-1.5; IV-F-7.2; IV-F-7.29; IV-F-7.36) criticized the compliance periods for averaging in the proposed rule and the supplemental notice as too long.

One commenter (A-90-19: IV-D-85) stated that the annual compliance period reflects an intention to accommodate rather than limit emissions and suggested that it sends the wrong message to toxic polluters. Two commenters (A-90-19: IV-D-87; IV-D-99) were concerned about the enforcement and administrative problems that a long period could cause. Two commenters (A-90-19: IV-D-87; IV-D-115) stated that the quarterly and annual averaging periods do not meet the criteria for "federally enforceable" because these are not "the shortest practicable time periods" and exceed 30 days.

One commenter (A-90-19: IV-D-51) stated that an averaging period for compliance not longer than quarterly was reasonable. Four commenters (A-90-19: IV-D-49; IV-K-10; IV-K-30; IV-K-44) endorsed a monthly averaging period. One of the commenters (A-90-19: IV-D-49) suggested that a compliance period no longer than 30 days was consistent with the statement in the proposal preamble that a 30-day compliance period could reasonably be applied to all the kinds of points that can be included in averages.

Response: The compliance period for averaging that was proposed, an annual period with quarterly checks, has been maintained for the final rule. Allowing averaging over a year's time instead of just one quarter provides flexibility for sources whose production rates vary over time. The additional requirement that debits cannot exceed credits by more than 30 percent in any one quarter should assure that wide-ranging fluctuations in HAP emissions will not occur.

The EPA concurs with commenters that a shorter averaging period than annual would preclude the use of some emission points in averages. An annual period allows inclusion of points that: (1) do not have the same emission rates during some periods of the year; and (2) must undergo temporary maintenance shutdowns at different times during the year. Hence, an annual period provides sources the necessary latitude to construct the most cost-effective averages. Moreover, the EPA considers it within their authority under the Act to establish the averaging period as any length that can be demonstrated to be enforceable.

The EPA is satisfied that the annual period will not pose any significant enforcement and administrative problems. As explained in section 2.7.2 of this BID volume, it is true that the annual averaging period could reduce the EPA's ability to use administrative enforcement actions. However, the requirement of a quarterly emissions check enables use of the administrative enforcement mechanism and allows more frequent enforcement than just once a year. Judicial proceedings can also be undertaken against sources violating the annual average or the quarterly check.

Some commenters were mistaken in citing criteria for Federal enforceability. The requirement for employing the shortest practicable time period relates to monitoring and does not apply to the compliance period for averaging. A more complete explanation of the difference between compliance periods for monitoring and emissions averaging is provided in the response to the fourth comment in this section.

The EPA acknowledges that a 30-day averaging period can be applied to all the kinds of emission points subject to the rule. However, as just discussed, a 30-day period is simply not workable because it would preclude averaging of points in processes with even slightly different production and maintenance schedules, thus discouraging averaging and decreasing the emission reduction benefits and cost savings that can be gained from averaging.

<u>Comment</u>: Two commenters (A-90-19: IV-K-9; IV-K-37) on the supplemental notice supported a quarterly block averaging period, asserting that it would be manageable and enforceable.

Four commenters (A-90-19: IV-K-1; IV-K-18; IV-K-30; IV-K-44) concluded that a quarterly block averaging period was the best of the options proposed in the supplemental notice, although they preferred the elimination of emission averaging from the HON regulation.

Two commenters (A-90-19: IV-K-34; IV-K-46) supported the option of a quarterly block averaging period with banking for up to one or two additional quarters.

Four commenters (A-90-19: IV-K-28; IV-K-29; IV-K-52; IV-K-54) supported a semiannual block averaging period with banking for an additional six months. Two commenters (A-90-19: IV-K-21; IV-K-25) preferred the semiannual block averaging period with banking of the four options given, although they preferred an annual averaging period.

However, several commenters (A-90-19: IV-K-2; IV-K-14; IV-K-20; IV-K-27; IV-K-34; IV-K-35; IV-K-39; IV-K-45; IV-K-47; IV-K-49; IV-K-62) preferred the approach originally stated in the proposed rule, of an annual compliance period with quarterly checks. Six of the commenters (A-90-19: IV-K-27; IV-K-34; IV-K-35; IV-K-39; IV-K-49; IV-K-50) argued that such an approach was both flexible and enforceable. Four commenters (A-90-19: IV-K-27; IV-K-39; IV-K-49; IV-K-50) argued that it was consistent with the compliance periods in regulations under titles I and IV of the Act. Two commenters (A-90-19: IV-K-2; IV-K-47) claimed that the annual period would allow emissions to fluctuate, and the quarterly check would ensure that debits and credits balance. Two more commenters (A-90-19: IV-K-2; IV-K-35) reasoned that changing the proposal provisions would limit emissions averaging.

One commenter (A-90-19: IV-K-22) stated that an annual averaging period was not necessary, and that the EPA should instead set an emissions cap based on the maximum allowable emissions for the aggregate of the emission points being averaged. Another commenter (A-90-19: IV-K-30) asserted that the EPA should evaluate other options than those proposed in the supplemental notice.

Response: For the reasons explained in the previous response, an annual averaging period with quarterly checks was selected as the most appropriate compliance period for the final rule. Proponents of the other options proposed in the supplemental notice did not provide a sufficient explanation of how a period other than annual would better address the concerns for emissions averaging compliance. One commenter's recommendation to evaluate options other than those in the supplemental notice could not be followed as the commenter did not suggest any specific types of compliance periods to consider.

One commenter's suggestion of an emissions "cap" based on maximum allowable emissions is not appropriate for standards under section 112(d) of the Act, which should set emission limitations that are based on use of the maximum achievable control technology. These standards can take various forms such as percent reductions, concentration levels, or emissions per unit of production, for example. However, an emissions cap in units of mass (e.g., total megagrams over some time period) is not consistent with section 112(d) because a cap would limit a source's production rate and prohibit expansions. The intent of NESHAP is to require the best controls, not to limit production. Moreover, even if a cap were allowed, a compliance period must still be established for enforcement purposes.

Comment: Three commenters (A-90-19: IV-D-49; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12) argued that lengthy averaging times would allow increased peak emissions of some pollutants with serious health effects and increase annual emissions. Nine commenters (A-90-19: IV-K-1; IV-K-10; IV-K-17; IV-K-30; IV-K-41; IV-K-44; IV-K-55; IV-K-63; IV-K-64) endorsed even shorter averaging periods than what was proposed in the supplemental notice, maintaining that they were necessary to protect the public health.

Seven commenters (A-90-19: IV-F-7.2; IV-F-7.29; IV-F-7.35; IV-F-7.44; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-99; IV-D-120) were concerned that emissions averaging would allow peak exposures because plants can maximize exposures in a short period of time as long as they average over a long period with low exposures. One commenter (A-90-19: IV-F-7.2) suggested that the whole idea of allowing credits is under attack nationally, in programs such as the acid rain program because of potential peak exposures. One commenter (A-90-19: IV-D-49) suggested that the EPA assess whether the lengthy averaging times will increase health risk.

Two commenters (A-90-19: IV-D-90; IV-D-100) stated that a three-month averaging time would not provide sufficient short-term data to evaluate the potential cancer and non-cancer health effects associated with exposure to emissions from the facility, which is an assessment required by State programs and the EPA. One commenter (A-90-19: IV-K-30) cautioned that even a monthly averaging period was too long to ensure public safety from exposure to hazardous pollutants. One commenter (A-90-19: IV-K-55) stated that three compliance periods, hourly, daily, and annual, were needed to assess the short- and long-term health impacts from exposure to HAP's.

Response: The EPA reemphasizes that neither the averaging period nor any other emissions averaging provision will allow increases in annual emissions compared to compliance without averaging. The requirement of a 30-percent quarterly emissions check is intended to prevent exposures to peaks of HAP emissions from occurring during the annual averaging period. Furthermore, there are other mechanisms to protect against peak releases. Malfunction plans and reporting of malfunctions are required by the General Provisions. Additionally, in the event that an accidental release occurs, the source will be subject to the proposed accidental release prevention rule (58 FR 5702; January 19, 1993).

The EPA took health risk into account by requiring a quarterly check along with the requirement that debits and credits balance annually. The EPA does not consider it necessary to perform a formal assessment of the averaging period's effect on health risk, or to account for the averaging period in the risk equivalency demonstrations now required by the final rule (discussion of this new requirement is located in section 2.9.6 of this BID volume). However, if a State takes the time period into account in their own risk assessment methodologies, they are free to continue considering it in the hazard or risk equivalency demonstration.

The claim that quarterly reporting of emission debits and credits provides insufficient short-term exposure data to evaluate health effects is not relevant to emissions averaging. Neither the proposed approaches for toxicity weighting (which were not adopted) nor the hazard or risk equivalency demonstration now required depend on short-term emissions or health effects data gathered after an average is approved and in effect. The commenters also stated incorrectly that hazard or risk assessments are required by the EPA; the EPA does not require them.

Comment: One commenter (A-90-19: IV-D-87) stated that the compliance period should be set at a minimum period such as hourly and daily, instead of quarterly and annual. Another commenter (A-90-19: IV-D-117 and IV-F-7.43) submitted that the shorter the averaging time, the more stringent and efficient the controls will be, and suggested that continuous monitoring technology can measure an hourly or a rolling 15-minute average. One commenter (A-90-19: IV-D-49) contended that any averaging program must require monitoring periods achievable by the most technically advanced monitoring equipment currently available.

Five commenters (A-90-19: IV-K-1; IV-K-10; IV-K-17; IV-K-41; IV-K-63) supported a 1-hour averaging period, asserting that even short-term exposures to HAP's can pose substantial risk. One of the commenters (A-90-19: IV-K-1) counselled that anything less than a 1-hour averaging period for process vents would violate the intent of the Act, as more than 12 percent of the industry currently achieve reductions on an hourly or continuous basis, and the EPA must make sure that it is proposing the shortest achievable compliance period. The commenter (A-90-19: IV-K-1) also stated that compliance periods for other kinds of emission points should be the shortest that are achievable.

One commenter (A-90-19: IV-D-85 and IV-G-6) noted that the proposal preamble does not explain why a compliance period stricter than 30 days could not be applied, and therefore, argued that the EPA should require hourly balancing of credits and debits calculated by computer and reported on a monthly basis for most emission points. The commenter (A-90-19: IV-D-85) stated that the annual compliance period will not produce reductions equal to those achievable through point-by-point compliance, because the total yearly emissions of a source complying with a standard on an hourly or daily basis will generally be less than a source complying with an obligation to comply on only a yearly or quarterly basis.

Response: Some commenters seem to have mistaken the compliance period for balancing averages with the period over which the operating parameters used to calculate emissions are measured. It was determined that regardless of the use of emissions averaging, calculation of hourly emissions and continuous emission monitoring are not technically feasible for this rule, as discussed in sections 2.3 and 3.2.4, respectively, of BID Volume 2E. Instead, in almost all cases, the rule requires that operating parameters that reflect the effectiveness of a control device (rather than emissions) be monitored every 15 minutes. In addition, the daily average of the operating parameter data is reported if it is outside a specified range. Hence, daily compliance is the shortest period required in the rule, even for points that are not in an emissions average.

This same parameter monitoring and reporting of daily average values outside their ranges is also required for points in averages, and if such excursions are not excused, they are considered violations of permitted operating conditions (for a more detailed discussion of excursions, see section 3.2.5 of BID Volume 2E). However, to also require daily balancing of debits and credits would be so restrictive as to render averaging useless.

The EPA discussed at proposal why an averaging period shorter than monthly could not be applied. The control and monitoring equipment available has only limited ability to distinguish short-term fluctuations in emissions from some kinds of points, such as transfer racks and storage vessels. Furthermore, emissions from these two kinds of emission points vary daily depending on factors such as temperature and loading schedule. Compliance periods shorter than monthly would preclude their inclusion in averaging. Hence, it was concluded that 30 days was the shortest averaging period that could reasonably be applied to all the kinds of points that can be included in averages. The reasons why an annual compliance period with quarterly checks was chosen instead of a monthly or quarterly compliance period are explained in the first response in this section.

An annual compliance period for averaging will not affect the emission reductions that will be achieved compared to point-by-point compliance. Emission points included in emissions averages must comply with the same monitoring requirements as the other points in the source, including taking data samples every 15 minutes and reporting excursions. If a debit or credit generator emits more than what was planned, the source will be in violation unless the average is balanced with more credits or fewer debits from other points.

Comment: Five commenters (A-90-19: IV-D-9; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-118; IV-D-124; IV-D-125) considered it unacceptable to greatly lengthen the averaging times beyond current State practice for compliance with emissions limitations. As an example, one commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) contended that under ordinary State smog control rules, process vents are subject to averaging times of one hour. Four commenters (A-90-19: IV-D-9; IV-D-118; IV-D-124; IV-D-125) suggested that averaging times for MACT standards for each emitting unit should be at least as strict as the most stringent state VOC rules.

One commenter (A-90-19: IV-D-85) claimed that because all process vents can comply with an hourly emission limit, they could comply with a reduction requirement on an hourly basis, and thus, the EPA must require hourly balancing. The commenter (A-90-19: IV-D-85) added that emission points that cannot comply with an hourly emission limitation should not be included in averages with vents. The commenter (A-90-19: IV-D-85) argued that allowing such trades would relax the stringency of the standard through a relaxation of the cumulative averaging time.

Response: As discussed in the previous response, the compliance period for averaging should not be confused with the period over which operating parameters are monitored to ensure a control device's effectiveness.

Previous NSPS and CTG's for VOC emissions from process vents required controls to achieve 98 percent reduction on a 3-hour basis. Compliance was determined by an initial performance test (conducted over a 3-hour period), and continuous parameter monitoring was required. State VOC rules may use similar compliance procedures. However, such State rules are developed under different programs with different goals from the federal NSPS and NESHAP programs.

The HON compliance approach is generally consistent with the previous NSPS for process vents, and results in the use of MACT. Process vents in emissions averages (as well as Group 1 vents that are not in averages) must perform an initial test over a 3-hour period to demonstrate the control efficiency achieved, and then must apply continuous parameter monitoring to ensure the control device's effectiveness. The parameter monitoring results are summarized on a daily basis for compliance determinations for reasons explained in section 2.3.1 of BID Volume 2E. These monitoring requirements are the same for both averaged and non-averaged points. Thus, the EPA is not relaxing the standards or its monitoring requirements to accommodate averaging.

Comment: One commenter (A-90-19: IV-D-85) suggested that for any compliance period, the EPA should either state when the period begins and ends or require the source to choose a period in advance and stick to it. The commenter (A-90-19: IV-D-85) was concerned that otherwise, sources could play "games," claiming that they were in compliance with respect to a period figured from a starting date selected after the fact to evade enforcement.

Response: For the source that intends to use emissions averaging immediately, the compliance period of the average will begin on the same date that the source as a whole must comply with subpart G of the rule. That date is defined in §63.100(k)(2) of subpart F of the final rule to be no later than three years after the date the rule is published in the Federal Register. The periodic (quarterly) reporting provisions in §63.152 of subpart G clarify that the first quarter begins on the compliance date, and the second quarter would begin when the first quarter ends, etc.

If the owner or operator of a source decides to use emissions averaging after the source has begun complying with the rule, the change must be made as a permit amendment subject to all review and comment provisions. If the source is operating under an Implementation Plan instead of an operating permit, the plan must be updated and approved according to the procedures in §63.151(i) of the rule. In either case, the date that the compliance period for the emissions average begins will be established when the operating permit amendment or Implementation Plan update is approved. Of course, until the emissions average goes into effect, the points in the average must have been in compliance with the rule on a point-by-point basis.

2.7.2 Preclusion of Administrative Enforcement

Comment: Six commenters (A-90-19: IV-D-9; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-117 and IV-F-7.43; IV-D-118; IV-D-124; IV-D-125) warned that an annual averaging period may preclude administrative enforcement, because violations more than a year old cannot be enforced through the Act's administrative enforcement mechanism. One commenter (A-90-19: IV-D-85) reasoned that because the EPA considers administrative enforcement a relatively inexpensive enforcement tool (as stated in the proposal preamble), constructing a scheme that makes use of administrative enforcement difficult conflicts with the Congressional intent to make it available.

Three commenters (A-90-19: IV-D-32; IV-D-57; IV-D-86) disagreed and suggested that an annual compliance period would not unduly impede the EPA's ability to enforce the standard. One commenter (A-90-19: IV-D-32) predicted that the only potential area in which the EPA's enforcement authority could be limited would be the imposition of administrative penalties under section 113(d) of the Act, which imposes a one-year statute of limitations, because such a penalty action instituted following a report of a compliance failure could not seek penalties for the entire year. The commenter (A-90-19: IV-D-32) suggested, however, that if the EPA initiated the penalty action reasonably promptly, the period of "lost" penalties would be relatively insignificant. The commenter (A-90-19: IV-D-32) also stated that the compliance periods will remain fully enforceable under sections 113(b) and (c) of the Act, which provides for civil and criminal penalties with a longer statute of limitations.

Response: As stated at proposal, the EPA recognized that an annual averaging period could limit its authority to take administrative enforcement actions because under section 113(d) of the Act, assessment of administrative penalties is limited to violations that occur no more than 12 months prior to the initiation of the administrative proceeding. This concern was one of the reasons that a quarterly emissions check was proposed in addition to the annual period and included in the final rule. The quarterly check enables the EPA to use its administrative enforcement authority by providing a shorter period in which to verify compliance. Further details of the quarterly check are discussed in the next section. The commenter is also correct in stating that the one-year statute of limitations does not apply to judicial proceedings for civil and criminal penalties.

2.7.3 Quarterly Emissions Check

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-56; IV-D-58; IV-D-62; IV-D-72; IV-D-74; IV-D-75; IV-D-79; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-92; IV-D-106; IV-F-1.1 and IV-F-3; IV-F-1.6 and IV-F-6; IV-F-1.7; IV-G-1) concurred with the EPA that a quarterly emissions check is reasonable.

One commenter (A-90-19: IV-F-1.1 and IV-F-3) warned that with a shorter time frame than quarterly, if credit-generating points are shut down for a period of time, a source might be out of compliance even though total emissions from the facility may be lower than if the credit generator had been operating. Two commenters (A-90-19: IV-D-32; IV-D-74) suggested that the quarterly emission limitation should allay concerns that an annual compliance period would allow high emissions for some shorter period.

Three commenters (A-90-19: IV-D-72; IV-D-106; IV-G-1) supported a 35 percent quarterly debit-to-credit ratio limit. One commenter (A-90-19: IV-K-6) advocated that debits be allowed to exceed credits by at least 35 percent. Another commenter (A-90-19: IV-K-62) stated that if the compliance period were shortened from what was proposed originally, debits should be allowed to exceed credits by 100 percent instead of 35 percent.

Response: The EPA appreciates commenters' support for establishing an additional quarterly emissions check to enable the use of administrative enforcement and to preclude the possibility of peak HAP emissions. The requirement that debits not exceed credits by more than 30 percent in any quarter has been included in the final rule. A range of 25 to 35 percent was proposed for the amount of debit exceedance to be allowed in any quarter. The midpoint of the proposed range, 30 percent, was selected as a way of balancing industry concerns about operational flexibility with other concerns about protection from peak emissions.

Comment: One commenter (A-90-19: IV-D-78) was opposed to a quarterly limitation as long as the source meets the annual limitation and recommended that only quarterly reporting should be required. The commenter (A-90-19: IV-D-78) suggested that if quarterly debit-to-credit ratios must be limited, the EPA should at a minimum allow use of banked credits for quarterly compliance.

One commenter (A-90-19: IV-D-89) submitted that a limitation on the usage of banked credits not to exceed 25 to 35 percent quarterly is counterproductive and disadvantageous to industry. The commenter (A-90-19: IV-D-89) claimed that it establishes a dual set of limitations, which discourages ongoing efforts to control other emissions. The commenter (A-90-19: IV-D-89) complained that the quarterly limitation assumes that industry will make only a one-time or infrequent effort to control emissions beyond regulatory requirements, which may not be the case nor should it be encouraged by the EPA. The commenter (A-90-19: IV-D-89) argued that because the rule requires monthly emissions averaging records, establishing a quarterly limitation as a shorter period to enable the EPA to verify compliance is not important, and the documentation associated with this and other compliance limitations places a great burden on industry and the reviewing agency.

Response: The EPA is satisfied that establishing a dual compliance period of annual averaging with quarterly emissions checks is justified. One commenter's recommendation of requiring only quarterly reporting has already been met; Periodic Reports for emissions averages must be submitted every quarter. However, the commenter's further suggestion of allowing the use of banked credits to meet quarterly compliance is not appropriate. For reasons discussed in section 2.10 of this BID volume, credit banking is not allowed in the final rule. Moreover, allowing the use of banked credits to meet the quarterly requirement runs counter to one main reason for establishing the requirement: to preclude the possibility of peaks of HAP emissions.

The commenter opposed to a quarterly limit on the use of banked credits appears to have misinterpreted the proposed rule. The commenter is correct that the provisions establish a dual compliance period, but did not explain why such a dual limit should discourage control of other emissions. The EPA does not assume that any source's controls will be one-time or infrequent and predicts that emission reductions will occur continuously throughout the averaging period.

However, many commenters have cited the likelihood that operational variability or different maintenance schedules on points in an average can lead to short-term periods when debits and credits do not balance, despite the fact that credits outweigh debits on an annual basis. Other commenters have expressed concern that peak releases of HAP's could occur and could have health impacts. Allowing annual averaging with quarterly checks accommodates operational variability, but prevents wide-ranging fluctuations in HAP emissions over time. A quarterly check of 30 percent debit exceedances strikes a reasonable balance between operating flexibility and protection from peak emissions.

The frequency of recordkeeping does not substitute for establishing a period for verifying compliance or for guarding against peak emissions. The justification for requiring monthly records and discussion of the burden associated with this requirement can be found in sections 2.3 and 2.5, respectively, of BID volume 2E. The only bearing recordkeeping frequency has on the compliance period issue is whether sufficient data will be available to verify compliance, and monthly recordkeeping is entirely suitable for the averaging periods that have been established.

Comment: Five commenters (A-90-19: IV-D-51; IV-D-90; IV-D-99; IV-D-100; IV-D-115) opposed allowing emission debits to exceed credits by 25 to 35 percent in a quarter.

Three commenters (A-90-19: IV-D-90; IV-D-100; IV-D-115) contended that debits should never be allowed to exceed credits. One commenter (A-90-19: IV-D-85) argued that the EPA should not allow 25 to 35 percent exceedances from its standards because doing so violates the maximum emissions reduction achievable standard. One commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) complained that a quarterly limit permitting administrative enforcement when sources produce more than 25 percent in extra emissions does not provide an adequate check because sources that stay within the quarterly limit, but violate the annual limit might be immune from administrative enforcement. Two commenters (A-90-19: IV-D-90; IV-D-100) stated that the 25 to 35 percent exceedance was in direct conflict with permit conditions which require the owner or operator to comply with emission standards.

One commenter (A-90-19: IV-D-115) contended that the 25 to 35 percent debit exceedance provision makes it impossible for an inspector to determine whether or not a source is in compliance. The commenter (A-90-19: IV-D-115) stated that any exceedances should be reported and reviewed by the administering agency.

Three commenters (A-90-19: IV-D-51; IV-D-99; IV-D-115) opposed debits exceeding credits by 25 to 35 percent because of concern that owners or operators would accumulate so much "debt" they would not be able to comply with the annual average. Two of the commenters (A-90-19: IV-D-51; IV-D-99) stated that hence, debits should not be allowed to significantly exceed emission credits. One commenter (A-90-19: IV-D-51) suggested that the permitting authority be informed through a facility permit or Implementation Plan of how a source intends to comply with the MACT standard in order to prevent owners or operators from accumulating too much emissions "debt."

Three commenters (A-90-19: IV-D-51; IV-D-99; IV-D-115) opposed debits exceeding credits by 25 to 35 percent because of concern for public health impacts caused by short-term exposures. One commenter (A-90-19: IV-D-87) stated that emission debits should not exceed emission credits at any time without an evaluation of the impact to potential adverse effects to human health and the environment.

Response: The commenters' suggestion not to allow debit exceedances in any quarter would be tantamount to establishing a quarterly averaging period, which would restrict flexibility too severely as discussed in section 2.7.1 of this BID volume. The provision for a 30-percent quarterly debit exceedance does not violate the maximum emissions reduction standard because the source must achieve the same or greater emission reductions on an annual basis as it would under point-by-point compliance and make the same annual compliance certification. Furthermore, controls applied to points in emissions averages are subject to the same requirements for continuous monitoring to assure proper operation of control technology as other emission points.

It is possible that a source could always meet the quarterly limit, but not comply annually and still avoid administrative penalties. However, noncompliance with the annual limit is the more serious violation, invoking much more substantial penalties than the administrative ones. Judicial proceedings could be undertaken in such a situation. The concern over conflicts with permit conditions is also unfounded as emissions averaging (and the rule as a whole) is consistent with the operating permit program rule. Both the quarterly and annual limits can be incorporated as enforceable requirements in operating permits.

The quarterly check will not impair compliance inspections as suggested. Typically, an inspection is used primarily to ensure that control devices are operating as specified in the operating permit. In addition, monthly records of debit and credit calculations would also be available during an inspection. Finally, the quarterly check will be demonstrated in the Periodic Report. As long as a source's debit and credit calculations are acceptable (i.e., the control devices have been operating correctly, the values in the emissions estimation equations are accurate, and operating rates were as planned) and debits do not exceed credits by more than 30 percent, the source would be considered to be in compliance for the quarter.

Regarding the concern for sources accumulating too much debit exceedance, allowing the flexibility of quarterly exceedances does not absolve the source of its responsibility to comply with the annual average. As stated previously, annual noncompliance is the most serious violation carrying the most severe penalty, which should deter sources from accumulating too much "debt."

A quarterly check was incorporated into the compliance scheme out of concern for public health and short-term exposures. As stated previously, the quarterly limit will protect against emission peaks so that potential health and welfare effects are avoided. The 30-percent differential between debits and credits should not result in a significant increase in emissions from a plant during any given quarter because only the net emissions from the few points in the average would increase.

2.7.4 Alternative Proposal for Quarterly Limit

Comment: Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-56; IV-D-58; IV-D-62; IV-D-73 and IV-G-11; IV-D-74; IV-D-75; IV-D-79; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-86; IV-D-92; IV-F-1.6 and IV-F-6; IV-F-1.7) expressed support for the industry proposal identified in the preamble, which would establish a quarterly emissions check based on the source's allowable emission levels. One commenter (A-90-19: IV-D-83 and IV-F-1.3 and IV-F-5) recommended a quarterly cap of 35 percent of total annual allowable emissions as sufficient to provide adequate protection against potential short-term adverse air quality impacts. Two commenters

(A-90-19: IV-D-32; IV-D-73) included separate attachments illustrating examples of the industry fixed cap approach.

Two commenters (A-90-19: IV-D-58; IV-D-62) stressed that the cap should be applied to allowable emissions as set in a source's operating permit. Two commenters (A-90-19: IV-D-32; IV-D-73) supported the alternate "fixed cap" approach for a quarterly limitation claiming that it satisfies the intended purposes of the quarterly compliance requirement by precluding short-term spikes in emissions. Four commenters (A-90-19: IV-D-32; IV-D-62; IV-D-74; IV-D-92) suggested that the alternate approach provides for further reductions because it avoids situations under which an emission point is operated simply to generate needed credits. Three commenters (A-90-19: IV-D-32; IV-D-73; IV-D-75) also supported it because it does not cause a source to be in violation if a credit-generating operation is unavoidably curtailed for some part of the quarter.

Two commenters (A-90-19: IV-D-58; IV-D-75) preferred the industry proposal because it gives sources more certainty as to what the allowable emissions are for a fixed period and allows for an easier compliance determination by both the source and the State. One of the commenters (A-90-19: IV-D-58) warned that under the proposed approach for a quarterly check, a quarterly limit on the debit-to-credit ratio could be less than or greater than allowable emission limits included in permits depending on the circumstance of the averaging program, and could be a conflicting compliance requirement.

One commenter (A-90-19: IV-D-85) opposed the industry-proposed alternative for a quarterly emissions limitation. The commenter (A-90-19: IV-D-85) suggested that an emissions cap that excludes consideration of the emissions from uncontrolled Group 1 points is even less defensible than the debit-to-credit ratio proposal. The commenter (A-90-19:

IV-D-85) asserted that the industry-proposed quarterly limitation bears no discernible relationship to the emissions level sought to be achieved.

Response: The EPA did not adopt the industry-proposed alternative for the quarterly emissions check because of concerns about an absolute emissions limit based on projections. Operating levels for calculating allowable emissions are based on representative predictions of realistic operating scenarios. The use of such a system creates an incentive to "game," i.e., to project higher operating rates for credit-generating points than is representative or realistic. In contrast, the quarterly check included in the final rule depends on the actually demonstrated operating rate during the quarter, not projections.

Under the industry-proposed alternative, it would make no difference whether the emissions from a debit generator increase or the emissions from a credit generator decrease; as long as the total emissions are below the cap, the facility remains in compliance. However, in order for a source to be in compliance on an annual basis, credits from overcontrol must equal or exceed debits from undercontrolled points in order to result in the same or greater emission reductions as would have occurred under point-by-point compliance. A quarterly limit on the debit-to-credit ratio is more consistent with this approach. If the emissions from a debit point increase and/or the emissions from the credit point decrease significantly, it could impact whether or not the facility is in compliance. A large increase of emissions from a debit generator or decrease in emissions from a credit generator (i.e., a deviation greater than 30 percent from the emissions that would have occurred under a point-by-point compliance) is significant. Therefore, the debit-to-credit ratio limit represents a better check on potential annual noncompliance.

The possibility of an emission point being operated simply to generate needed credits is not of great concern because it can be demonstrated that there is not much difference in a source's total emissions whether a credit generator is operated or shut down. Moreover, the industry-proposed cap would not shrink along with unexpected decreases in production, which could allow a much greater exceedance of debits over credits, resulting in more opportunities for emission spikes. Or, if production increased dramatically in one quarter, a source could be significantly out of compliance on a quarterly basis but could stay in compliance for the year. However, it would be difficult for implementing agencies to recognize either of these situations without a detailed knowledge of both actual and projected production levels. The selected debit-to-credit ratio limit based on actual operation allows sources and implementing agencies to recognize a quarterly violation easily and immediately.

In this rule, the source does not need to know what its total allowable emissions are in any period because the total emissions are not limited. The source must either maintain RCT's properly or ensure that debits are balanced by an equal number of credits with a leeway of 30 percent each quarter. The EPA maintains that instead of allowing for an easier compliance determination, a system of assigning credits based on allowable emissions requires a great deal more scrutiny of the source's prediction of operating levels. As stated previously, the entire rule is designed to be consistent with the operating permit program rule. There should be no conflict between the HON and the operating permit because the quarterly check, as well as the annual credit/debit balance and the monitoring requirements will be stipulated as permit conditions.

2.8 IMPLEMENTATION AND ENFORCEMENT

2.8.1 General Issues

Comment: Nine commenters (A-90-19: IV-D-9; IV-D-41; IV-D-49; IV-D-70; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-117; IV-D-118; IV-D-124; IV-D-125) claimed that the emissions averaging provisions in the proposal make the HON weak and unenforceable. Nine commenters (A-90-19: IV-D-41; IV-D-90; IV-D-99; IV-D-100; IV-D-103 and IV-F-7.5; IV-D-115; IV-D-117 and IV-F-7.43; IV-F-1.5; IV-F-7.21) contended that there could be serious practical enforcement problems in an averaging scheme. One commenter (A-90-19: IV-D-99) stated that recordkeeping and enforcement problems are compounded by the long averaging period. The commenter (A-90-19: IV-D-99) added that allowing banking for an extended period (i.e., two to five years) contributes to recordkeeping and enforcement problems as well.

Response: The EPA has structured the emissions averaging provisions to be enforceable. Some aspects of the proposed rule have been changed to simplify emissions averaging and its enforcement. For example, banking has been removed, and averaging is not allowed at new sources or across source categories. Credits are not allowed for any control applied prior to 1990. The rule has been clarified to stipulate that wastewater treated in a biological treatment unit cannot be included in averaging. The total number of emission points that can be included in an average has been limited to no more than 20 points or 25 points if pollution prevention is used. Finally, the change offering the greatest administrative ease is that State and local agencies have been granted the discretion to not include emissions averaging in their implementation of the HON without having to go through the delegation process established in the section 112(l) rule.

The rule provides clear mechanisms for enforcement of averaging. Detailed procedures are prescribed for credit and debit estimation, and credits must outweigh debits. This assures that emissions are estimated on a consistent basis and that emission reductions under averaging will be at least as great as if all Group 1 points had been controlled. If credits and debits do not balance, this is a clear and enforceable violation of the emission standard. Furthermore, monitoring is required for emission points included in an emissions averaging. If continuous parameter monitoring results are outside the established range for more than a limited number of excused excursions, this is a violation of the requirements for proper operation, and enforcement actions can be taken. Provisions have also been added for calculation of credits and debits during monitoring parameter excursions to further clarify enforcement as discussed in section 2.8.2 of this BID volume.

Comment: Two commenters (A-90-19: IV-D-90; IV-D-100) contended that emissions averaging is not cost effective because of the costs associated with enforcing the provisions. One commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) predicted that a review of the cost of enforcing "bubbles" should lead the EPA to abandon emissions averaging in the proposed rule. The commenter (A-90-19: IV-D-85) provided a rule-effectiveness study of the aerospace coating industry conducted by EPA Region 9, which the commenter claimed concluded that "almost all large sources" operating under source "bubbles" failed to achieve required emission levels of control and that the "bubble" was extremely difficult to enforce. The commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) further claimed that this study reveals how costly "bubbles" can be in regulating agency staff time and in lost emissions reductions, and because the proposed HON is far more complex than the Aerospace Coating Standards evaluated in this study, the EPA should undertake a thorough review of its prior rule effectiveness studies before including emissions averaging.

Response: The number of emission points that can be included in an emissions average is now limited to only 20 points, 25 if pollution prevention is used. Therefore, review of Implementation Plans and quarterly reports will not be overly time-consuming for implementing agencies. Because the HON provides specific equations and procedures for credit and debit calculations, the review to determine whether calculations are correct will be relatively straightforward. The parameter monitoring for emission points in averages is the same as for other Group 1 emission points. Therefore, averaging will not increase the burden of reviewing monitoring results. As explained in the previous response, averaging has been simplified since proposal, which will reduce the complexity and, therefore, the cost of enforcement. Averaging is also designed to ensure equivalent emission reduction to control of all Group 1 points, and is structured differently from previous "bubble" rules. With respect to the study conducted by Region 9 of the EPA provided by one commenter, a perceived defect of the aerospace coating rule that thwarted enforcement efforts was inconsistent emission estimation methodologies and procedures used by different sources. Accordingly, the HON carefully prescribes the procedures and equations that must be used to estimate debits and credits, and sources may not deviate from their use, which eliminates inconsistencies.

2.8.2 Monitoring, Recordkeeping, and Reporting

Comment: Four commenters (A-90-19: IV-D-50; IV-D-59; IV-D-63; IV-D-71) argued that the monitoring, recordkeeping and reporting requirements for demonstrating compliance are overly burdensome and could negate any potential savings from emissions averaging. One commenter (A-90-19: IV-D-33) urged the EPA to minimize the monitoring, recordkeeping and reporting costs for ongoing compliance.

Response: The EPA recognizes that some additional monitoring, recordkeeping, and reporting is necessary for emissions averaging. For example, credits and debits must be calculated monthly and reported quarterly to ensure that the required emission reductions are achieved, and Group 2 points being used to generate credits must apply the same control device monitoring as Group 1 points. Owners or operators should take the recordkeeping and reporting requirements into account when deciding whether to utilize emissions averaging.

The EPA considers the monitoring, recordkeeping, and reporting requirements to be the minimum necessary to demonstrate compliance. Prior to and since proposal, the EPA has considered ways to reduce the general recordkeeping and reporting burden without sacrificing enforceability. For example, the proposed and promulgated rules require reporting of monitored parameter values only when they are outside the established range. Since proposal, provisions have been added to §63.151 of subpart G allowing case-by-case requests to use data compression and other alternative monitoring and recordkeeping systems that may allow continued use of current or more cost-effective systems at plants. Another change allows retention of hourly rather than 15-minute average values of monitored parameters for days when there is not an excursion. Other recordkeeping and reporting changes are described in chapter 2.0 of BID volume 2E. The effect of these changes will be to reduce the burden for all plants, including those that utilize emissions averaging.

Comment: Seven commenters (A-90-19: IV-D-9; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-117 and IV-F-7.43; IV-D-118; IV-D-124; IV-D-125; IV-F-1.5) considered the emissions averaging scheme unenforceable because it does not provide for adequate monitoring. One commenter (A-90-19: IV-D-85) declared that allowing emissions averaging without adequate monitoring violates the enhanced monitoring requirements, the maximum achievable emission reduction standard, and the Congressional intent to increase, not decrease enforceability of emission standards.

Six commenters (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-90; IV-D-99; IV-D-100; IV-D-103; IV-F-7.6) claimed that emissions monitoring plays an even more crucial role in an averaging scheme than under a technology-based approach. One commenter (A-90-19: IV-D-103) stated that cross-chemical trading over time would require implementation of comprehensive monitoring of all chemicals, and that there is no assurance that the EPA or the private sector can implement and enforce a complex trading system. One commenter (A-90-19: IV-D-85) maintained that emissions averaging increases the monitoring needs compared to the non-averaging approach because to verify compliance, monitoring must not only show that the required reduction has been attained at controlled points, but also that the reductions from these points exceed the emissions from uncontrolled Group 1 points. The commenter (A-90-19: IV-D-85) added that monitoring the uncontrolled emissions from debit-generating points is critical in emissions averaging because achievement of the standard is dependent on proper measurement of the debit as well as the credit.

Hence, six commenters (A-90-19: IV-D-9; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-117; IV-D-118; IV-D-124; IV-D-125) contended that under the proposal, no monitoring checks the accuracy of estimates of emissions from uncontrolled, debit-generating points nor the baseline emissions from the credit-generating point. One commenter (A-90-19: IV-D-85 and IV-G-6) asserted that the EPA should bar emissions averaging wherever the amount of both debits and credits cannot be adequately monitored.

Response: There are several mechanisms for enforcement of emissions averaging. Monthly credits and debits must be calculated based on measured and recorded values for different parameters depending on the kind of emission point, such as HAP concentration, flow rate, and monthly operating hours for process vents and rack throughputs for transfer operations. Values for some of these parameters (e.g., concentration and flow) are determined initially rather than measured continuously, but the rule requires a re-determination when process or operating changes are made to a debit or credit generator that could cause the previously measured values to be no longer representative. Other values that vary from month to month, such as operating hours for process vents and throughput for transfer racks, are recorded for each month, and the monthly values are used to calculate debits and credits. These procedures and equations in the rule allow sufficiently accurate estimation of monthly credits and debits to determine compliance. If credits do not equal or exceed debits in a year's time, or if debits exceed credits by more than 30 percent in any quarter, this is a violation of the emission standard, and enforcement action can be taken.

Furthermore, the controls applied to most Group 1 and Group 2 points in an emissions average must be monitored continuously. If these monitored average parameter values are outside the established range for more than the allowed number of excused excursions, this is a violation of the requirements for proper operation, and enforcement actions can be taken. Finally, provisions have been added to the final rule to require conservative estimation of credits and debits during excursions. These procedures will assure debits are not underestimated and credits are not overestimated during monitoring excursions.

The EPA considered emission monitoring, but determined that it was not technically feasible or necessary to use CEM's to determine credits and debits. This issue is discussed in the next response.

Comment: Two commenters (A-90-19: IV-D-85 and IV-G-6; IV-D-99) recommended that if emissions are averaged, CEM's be required wherever technically feasible to better ensure that control operate at the expected levels. One of the commenters (A-90-19: IV-D-85) considered CEM's even more essential to emissions averaging than the rule without averaging for the accurate and reliable measure of emissions and reductions, and suggested as a comparison that CEM's are essential in the acid rain program. The commenter (A-90-19: IV-D-85) suggested that even if parameter monitoring assures that the control technology on credit-generating points is working perfectly, without continuous emissions monitoring, increases in emissions above estimated values will create undetected violations of the standard.

Response: The EPA considered various means of determining credits and debits, and concluded that it is not technically feasible or necessary to use CEM's. To measure emissions continuously, both CEM's to measure HAP concentrations and continuous flow monitors would be needed at every emission point. There are no CEM's available for measurement of some organic HAP's. Where CEM's are available, they are generally more costly and more complex to calibrate and operate than operating parameter monitors, and may have greater downtime and greater uncertainty in their measurements. Further information regarding CEM's is included in section 3.2.4 of BID volume 2E. It was determined that the combination of credit and debit calculations based on representative operating conditions and records of process operation such as monthly operating hours and throughputs, along with continuous monitoring of control device operating parameters would be a more reliable and efficient means of enforcing emissions averaging than requiring CEM's. This selected system is described in the previous response.

Comment: One commenter (A-90-19: IV-D-85) complained that enforcement of the emissions averaging program is based on emissions estimation under representative operating conditions and warned that these estimates cannot substitute for monitoring and allows "gaming." The commenter (A-90-19: IV-D-85) explained that the phrase "representative operating conditions" is vague enough to encompass fairly wide variations in operating conditions, which gives plant operators the incentive to choose the operating conditions most likely to minimize the debits and exaggerate credits. Therefore, the commenter (A-90-19: IV-D-85 and IV-G-6) recommended that the EPA require conservative assumptions and eliminate gaming possibilities in the estimation of future credits and debits.

The commenter (A-90-19: IV-D-85) further complained that if the operating conditions change such that they are no longer "representative," the operator must conduct a new performance test, but need not report a violation of the standard. The commenter (A-90-19: IV-D-85) did not consider this an adequate check on emissions increases when operating conditions change especially with respect to uncontrolled Group 1 points, since no monitoring applies to those points.

The commenter (A-90-19: IV-D-85) recognized that for the purposes of NSR, the EPA has used representative operating conditions to assess whether a change of emissions has occurred, and then traditionally required the operator predicting no future emissions increases to specify operating conditions and to accept enforceable permit limitations including those operating conditions. However, the commenter (A-90-19: IV-D-85) did not consider this methodology an adequate means of measuring actual compliance with a standard. Moreover, the commenter (A-90-19: IV-D-85) warned that the

EPA has not proposed to specify operating conditions as enforceable limitations; therefore, a source could increase emissions from every uncontrolled point in an average while holding emissions from credit generators constant without a violation of the standard occurring.

Response: Representative operating conditions are determined on a case-by-case basis, and usually the source and the implementing agency discuss and agree on performance test conditions. Thus, the implementing agency can have direct input in establishing those conditions. It is expected that operating conditions for points generating debits, as well as points generating credits will be specified in a source's operating permit or as part of the approval process for emissions averaging Implementation Plans. If operating conditions required in the permit are violated, the implementing agency could take enforcement action. Changes in operation would be governed by the operating permit modification process, or the requirement for Implementation Plan updates, if an operating permit is not yet in effect. Furthermore, as the commenter mentions, if operating conditions for process vents, transfer operations, and wastewater streams change such that previously measured parameters are no longer representative, new representative values must be determined, and the new measurements must be used to calculate debits and credits from the time of the change forward. If the quarterly or annual credit/debit balances are not met, this is clearly a violation of the emission standard, and enforcement action can be taken.

Comment: One commenter (A-90-19: IV-D-49) contended that in no case should monitoring requirements in an averaging program be less stringent than existing State requirements.

Response: The HON establishes monitoring requirements that are necessary to determine compliance for emission points in emissions averages. The HON does not preclude a State from establishing additional requirements that the State determines are necessary to establish compliance with other State or Federal programs that affect the source. The operating permit program can be used to establish detailed requirements for each source.

Comment: One commenter (A-90-19: IV-D-117) suggested that companies which select emissions averaging be required to pay $1.00 per pound of HAP emissions annually, and that the money be used to purchase ambient air monitoring systems, which should be placed in the community closest to the HAP emission source.

Response: Fee schedules for HAP emissions are set by States as part of their operating permit programs. The EPA does not have the authority to mandate ambient monitoring in communities near sources through this rule. The purpose of the monitoring required by the HON is to establish compliance with the rule. Ambient air monitoring is not necessary to determine compliance with the rule because the HON does not establish an ambient air target concentration. Further information on this topic is contained in a response in section 3.2 of BID volume 2E.

Comment: Seven commenters (A-90-19: IV-K-1; IV-K-9; IV-K-10; IV-K-17; IV-K-30; IV-K-44; IV-K-64) supported the proposal in the supplemental notice to assign no credits and maximum debits when monitoring data are missing, the monitor is not functioning, or the monitor indicates that the operating parameter values are outside the permissible range.

One of the commenters (A-90-19: IV-K-9) asserted that these provisions would provide incentives for sources to properly maintain, operate, and monitor equipment.

Another commenter (A-90-19: IV-K-1) reemphasized their previous claim that full monitoring was required and that emission estimating and parameter monitoring are not adequate for averaging. Two commenters (A-90-19: IV-K-17; IV-K-63) recommended that the EPA mandate the use of real-time ambient monitoring in emissions averaging through the use of an FTIR instead of allowing parameter monitoring. Two commenters (A-90-19: IV-K-1; IV-K-17) considered the proposal defective because it does not allow enforcement against sources using emissions averaging that operate their monitors and control equipment properly, but overestimate credits and underestimate debits.

In contrast, ten commenters (A-90-19: IV-K-2; IV-K-7; IV-K-19; IV-K-22; IV-K-27; IV-K-33; IV-K-34; IV-K-35; IV-K-49; IV-K-66) opposed the proposal to assign no credits and maximum debits, citing the following reasons: (1) parameter values outside of the specified range do not necessarily indicate complete failure of the control device; (2) process instrumentation is designed and installed to allow for continued successful operation when monitors or other instruments are out of service; and (3) backup devices to monitors are available and utilized. One commenter (A-90-19: IV-K-66) presented examples in which monitors were out of service, but the source was not out of compliance.

Two commenters (A-90-19: IV-K-21; IV-K-22) stated that the provisions for emission points that are averaged should not be more stringent than those for other emission points, citing §63.152(c)(2)(ii)(A) of the proposed rule, which references excusable periods during the operation of the control device.

Response: After rule proposal, the concern was raised that if a point included in an emissions average experienced an excursion, the emissions could be different from what was expected because of the change in the control device's operation. As discussed in section 3.2.5 of BID volume 2E, an excursion occurs when either: (1) there are insufficient monitoring data; or (2) the parameter values are outside the permitted range. Because of the effect an excursion could have on a control device's effectiveness, a source that experiences excursions might be in violation of the standard. Hence, in the supplemental notice, comment was solicited on an approach whereby, when points in an average experience excursions, no credits would be assigned to a credit generator and maximum debits would be assigned to a debit generator for the period of the excursion.

After considering the comments submitted, this approach was added to the final rule. The presumption is that the excursion is caused by a significant problem in control device operation and the device is not achieving emission reductions. However, if the source has data indicating that some partial credits or debits may be warranted, the rule provides that the source can submit that information to the implementing agency with their next Periodic Report. Partial credits and debits can be assigned with the approval of the implementing agency.

These provisions are necessary to ensure that averaging achieves equivalent reductions to point-by-point compliance at all times. It is also true that the rule now provides sources with additional incentive to maintain monitoring equipment in proper working condition. However, this change in the monitoring provisions for emissions averaging does not indicate that the emissions estimation methodologies and parameter monitoring are suspect, or that real-time ambient monitoring is required. Also, these new provisions are not intended to be used to enforce against incorrect debit and credit estimations. As long as a source uses the equations specified in the rule correctly and determines the inputs to the equations according to the stipulated methods, there is no reason to doubt the accuracy of the debit and credit estimations.

The EPA agrees with commenters that it may be possible that an emission point might still be in compliance or the control might be achieving partial reductions even though an excursion was reported, and has therefore included provisions for sources to demonstrate that full or partial debits or credits are warranted during an excursion. However, if compliance during excursions cannot be satisfactorily demonstrated, any other assumption than a full failure of the control device during the excursion would result in estimated emission reductions that could not be verified or adequately enforced. Emissions averaging depends on the demonstration that debits and credits balance based on the actual operating conditions after the fact. Compliance on a point-by-point basis requires only that the source demonstrate that the RCT was operated at the proper design specifications. Hence, the averaging provisions are not more stringent. Rather, they are more detailed to ensure the consistency of the debit/credit estimation.

Comment: Four commenters (A-90-19: IV-K-2; IV-K-10; IV-K-37; IV-K-49; IV-K-50) identified specific situations in which missing data and exceedances should lead to assigning maximum debits and no credits. Two commenters (A-90-19: IV-K-2; IV-K-37) advocated assigning no credits and maximum debits only if the exceedances were numerous, repetitive, the result of negligence, or if other operating data indicated large deviations. Another commenter (A-90-19: IV-K-50) said no credits and maximum debits should be assigned if the data were missing or exceedances occurred over an extended period of time.

Four commenters (A-90-19: IV-K-2; IV-K-30; IV-K-37; IV-K-49) noted that it would seem reasonable to excuse missing data if the occurrences were infrequent and without pattern, and if other data do not indicate a deviation from normal operation.

Response: The EPA agrees that at a minimum, these situations described by commenters are ones that must be corrected, but does not agree that they should be the only situations that warrant taking the approach included in the final rule. Because of the nature of emissions averaging, i.e., substitution of control of some points for others, every step must be taken to ensure that this alternate compliance approach remains equivalent to the compliance scheme that would otherwise be required. Hence, it is the EPA's position that even a single excursion must be corrected and accounted for in calculating debits or credits, not just extended or repetitive violations; the source can reestablish the average balance in the succeeding quarters.

It should be noted that some data can be missing and still not qualify as an excursion, thus the concerns of several commenters are accommodated by this policy.

Comment: Several commenters (A-90-19: IV-K-14; IV-K-17; IV-K-18; IV-K-21; IV-K-25; IV-K-27; IV-K-30; IV-K-33; IV-K-34; IV-K-39; IV-K-46; IV-K-54; IV-K-55; IV-K-62; IV-K-63; IV-K-64) offered alternatives for accommodating missing data and parameter exceedances.

Six commenters (A-90-19: IV-K-21; IV-K-35; IV-K-47; IV-K-49; IV-K-56; IV-K-66) favored allowing sources to use other available data to calculate full credits and debits when monitoring data are missing. One of the commenters (A-90-19: IV-K-66) further indicated that the source should be required to notify the permitting authority when the monitor (not the control unit) is malfunctioning, identify an alternative monitoring parameter that could be used, and follow other requirements of the General Provisions.

Three commenters (A-90-19: IV-K-54; IV-K-62; IV-K-64) advocated including provisions for partial or full credits in certain circumstances. Two commenters (A-90-19: IV-K-18; IV-K-21) recommended that no credits and maximum debits be assigned only in situations that trigger the option of quarterly reporting. Another commenter (A-90-19: IV-K-14) supported requiring data for less than 100 percent of the operating time, and allowing the use of portable analyzers.

One commenter (A-90-19: IV-K-30) advocated the maximum allowable emission rates be used to calculate maximum debits.

Another commenter (A-90-19: IV-K-62) recommended allowing the source to assume the last emission rate measured if the monitoring equipment was down for less than 24 hours, but assigning maximum debits and no credits if the monitor indicates that the operating parameter values exceed allowable ranges. A third commenter (A-90-19: IV-K-25) agreed that no credits or debits should be assigned when monitoring data is missing.

One commenter (A-90-19: IV-K-33) supported case-by-case assessment of the significance of missing data and parameter exceedances. Another commenter (A-90-19: IV-K-55) recommended that State agencies have broad latitude to assess compliance if the source exceeds the permit limit, but agreed that no credits should be allowed if monitoring data are suspect.

One commenter (A-90-19: IV-K-39) advocated using the approach of the program under Title IV of the Act, which provides incentives for continuous data and does not completely eliminate credits for missing data.

Response: The EPA agrees that there may be some cases or conditions under which the implementing agency can be satisfied that granting partial or full credits and debits is still warranted. For example, the emission point may be routed to a backup control device, or there may be evidence that a control device is operating even if a particular monitor is out of service. Therefore, the final rule provides that the evaluation and issuance of credits and debits during questionable periods shall be at the discretion of the implementing agency.

It is stipulated in §63.150(l) of the final rule, that along with notifying the implementing agency that excursions have occurred, a source may demonstrate that other types of monitoring data or engineering calculations are appropriate to establish that the control device for the emission point was operating in such a fashion that partial, if not complete, reduction was being achieved. Documentation of these other types of monitoring data or engineering calculations must be provided to the implementing agency at the time the excursion is reported. The demonstration must be made to the implementing agency's satisfaction according to the procedures that the agency has established. Some of the alternatives suggested by commenters for accommodating missing data and parameter exceedances workable, and an implementing agency may allow for the suggestions in their procedures. The implementing agency may then assign full or partial credits and debits upon review of the information provided.

As noted in the previous response, no credits and maximum debits are assumed (unless proven otherwise) for excursion periods, which are determined on a daily basis. If a monitor is out of service or a parameter is out of range for such a short period that it does not cause a daily excursion, then the calculation of credits and debits are not affected. The definition of an excursion is the same for points in emissions averages as it is for other points at the source. Use of a consistent definition of an excursion is necessary so that the averaging provisions achieve the same reductions as the point-by-point provision.

Comment: Three commenters (A-90-19: IV-K-27; IV-K-34; IV-K-46) recommended that emission credits and debits should be independent of each other, so that facilities are not doubly penalized when one monitor was not working. The commenters (A-90-19: IV-K-27; IV-K-34; IV-K-46) also advocated limiting emission credits and debits to the emission points addressed by the monitor in question.

Response: The EPA thanks the commenters for recognizing this important point, which was not made clear in the supplemental notice. The only emission point that is affected by this new provision is the point exhibiting the excursion. If that point is a credit generator, it will be assumed that the point generated no credits for the duration of the excursion. No other points are affected, and the source will not be doubly penalized.

2.8.3 Administrative Burden

Comment: Three commenters (A-90-19: IV-D-70; IV-D-90; IV-D-100) were concerned about the burden and difficulty emissions averaging would pose to the implementing agency. One commenter (A-90-19: IV-D-70) contended that for each of the hundreds or thousands of emission points at a facility, three numbers would have to be evaluated and checked (baseline, required, and proposed). The commenter (A-90-19: IV-D-70) also stated that emissions averaging would require many CEM's to be certified and reports reviewed and concluded that emissions averaging would require three to four times more resources to administer than HON without emissions averaging.

Two commenters (A-90-19: IV-D-90; IV-D-100) were concerned about the implementing agencies' abilities to determine compliance of a HON facility that averages emissions because of the complexity involved in estimating and tracking emissions from various kinds of points. The commenters (A-90-19: IV-D-90; IV-D-100) claimed that extensive monitoring and recordkeeping will be required to ensure that sources using averaging achieve the same emission reduction as would be achieved without averaging. The commenters (A-90-19: IV-D-90; IV-D-100) stated that extensive resources would also be required to track emission fluctuations and associated adjustments to the emissions average due to modifications or simple routine maintenance of points within the average. Hence, the commenters (A-90-19: IV-D-90; IV-D-100) contended that the resource requirements for emissions averaging far exceed what is currently available or anticipated by State agencies in implementing the operating permit program.

Response: The administrative burden of implementing the emissions averaging program of the rule is one issue voiced by all concerned parties to which the EPA paid particular attention. Many of the changes to the final rule were made in response to comments and with the express purpose of easing perceived administrative burdens. These changes are discussed in greater detail throughout this BID volume. Not all changes that were suggested could be made, and some provisions were added to improve enforceability or to ensure public health protection, which may contribute to the administrative burden.

Some commenters were mistaken about the number of emissions estimates that would be required in emissions averaging. Calculation of emission debits and credits are required for only the points included in an emissions average, not for all emission points at a source. One change in the final rule is that an average can contain no more than 20 points, 25 if pollution prevention is used (this new provision is discussed in section 2.8.5 of this BID volume). So, the concern over the number of points for which emission estimates are required has been addressed.

Finally, the source need only calculate two emission values for a debit generator and two values for the credit generator. For a debit generator, actual emissions based on the controls in place (if any) and emissions if the RCT had been applied need to be calculated and compared. These values can be easily calculated using estimates of uncontrolled emissions and the reduction efficiencies of controls that were demonstrated in initial performance tests, and specific procedures for making estimates and carrying out performance tests are provided in the rule. For a credit generator, the emissions that are allowed under the rule and the actual emissions are calculated using procedures specified in the rule as well.

The CEM's to which the commenters referred are not required for averaging or other parts of the rule; rather continuous parameter monitoring is allowed. It is true that emissions averaging requires quarterly reporting whereas under the rule without averaging, Periodic Reports need be submitted only twice a year. Still, the EPA does not foresee the administration of an emissions average requiring three to four times more resources than if the points were complying on a point-by-point basis, and no compelling evidence was provided to substantiate the claim.

The EPA does not consider the estimation methodologies for averaging to be too complex; the appropriateness of the methodologies is discussed in greater detail in section 2.11.4 of this BID volume. Tracking emissions is not unduly complex either as the points included in averages must be identified separately in the Implementation Plan or the operating permit. Debits and credits are calculated monthly based on limited inputs such as monthly operating hours and previously measured values. Adjustment of emission calculations for fluctuations is required only if an excursion occurs, and specific procedures have been included in the final rule to address such situations. It was acknowledged earlier that some additional monitoring, recordkeeping, and reporting is necessary to implement emissions averaging and to ensure proper operation. But, again, the EPA maintains that with the new limits on averaging, any additional burden has been limited as well and does not far exceed that associated with compliance on a point-by-point. If, however, an implementing agency does realize greater costs in administering averages, the cost could be addressed by applying a higher permit fee for the points included in emissions averaging.

Comment: Five commenters (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-87; IV-D-99; IV-D-115; IV-F-7.6) testified that State and local agencies found the emissions averaging programs implemented in the past complicated to enforce because it is very difficult to determine whether all points involved in an average are maintaining emissions below the required levels. One commenter (A-90-19: IV-D-115) maintained that this can only be determined in hindsight through review of records, which means that equipment may continue to operate out of compliance for prolonged periods of time. Four commenters (A-90-19: IV-D-87; IV-D-99; IV-D-115; IV-F-7.6) predicted that tracking, recordkeeping, and enforcement will be a long-term resource and financial strain for industry as well as for State and local agencies.

Response: Under the emissions averaging program in this rule, it is not difficult to determine whether points are maintaining their required emissions levels. An inspector must simply check whether controls have been installed and are operating properly for credit-generating points, just as all the Group 1 points would be inspected under point-by-point compliance.

Then, sources are required to calculate debits and credits using the equations specified in the rule and to report results. Because the calculations must be made according to specific procedures and because the inputs on which the calculations are based and data on any monitoring parameter excursions must be provided, the calculations can be checked relatively easily. Thus, it should not be true that noncompliance situations would be allowed to continue for prolonged periods.

Comment: One commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) suggested that State agencies in areas with large numbers of chemical plants with potentially huge numbers of emission estimates lack the resources to oversee an emissions averaging system that depends on estimates and one-time performance tests rather than reported monitoring of emissions. The commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) further suggested that States will have to check carefully whether prior reductions credited are real, evaluate requests for alternative monitoring, and compare alternative technologies to RCT. The commenter (A-90-19: IV-D-85) added that after creating monitoring programs, States will have to redo these programs every time a source amends their Implementation Plan. The commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) complained that few of these items are required under the proposed rule and, if they were, an enormous increase in permit fees would be required to fund the work.

Response: As indicated previously, the administration of an emissions average is not much different than point-by-point compliance. The same types of monitoring are required for points in averages as for other Group 1 points. Beyond inspections for proper operation of control devices, averaging compliance determinations are based on monitoring data and debit and credit calculations submitted in Periodic Reports. The final rule does not allow credit for controls applied prior to November 15, 1990, resulting in a decrease in the administrative burden, as discussed in section 2.5.3 of this BID volume. Many of the other burden items mentioned by the commenter are not unique to emissions averaging. An implementing agency will have to evaluate requests to use alternative monitoring and control technologies under point-by-point compliance as well as under averaging, and it is not anticipated that there will be many such requests. Moreover, requests for alternative means of emission limitation (requested in place of an equipment or work practice standard under point-by-point compliance) and requests for nominal efficiencies for new control technologies that are more efficient than the RCT will usually have to be approved by the EPA, not the implementing agency. Any change to the Implementation Plan must be reviewed regardless of the use of averaging. Contrary to the commenter's claim, these items were all included in the proposed rule and have been retained for the final rule.

Comment: One commenter (A-90-19: IV-D-70) stated that emissions averaging was in total conflict with their State's NSR requirements. The commenter (A-90-19: IV-D-70) added that they had implemented a comprehensive NSR program for over twenty years, and their State concluded early in this history that emissions averaging or "bubbling" did not contribute to effective air pollution control and was a detriment to these efforts.

Response: The EPA recognized that the averaging provisions might conflict with some States' existing programs for regulating HAP's or other air quality programs. Hence, the provision has been added to the final rule for States to exclude averaging from their implementation of the rule outside of the rule delegation process provided under section 112(l) of the Act. The discussion of this new provision is contained in section 2.8.4 of this BID volume. However, another change to the rule prohibiting new sources from using emissions averaging, which is discussed in section 2.3.2 of this BID volume, may make averaging in this rule compatible with the State's existing air programs.

Comment: One commenter (A-90-19: IV-D-115) maintained that the emissions averaging provisions should not apply to sources that are subject to other applicable requirements, or that such sources should only be allowed to undercontrol down to the levels permitted under the existing Federal, State, or local requirements.

Response: If another State or Federal regulation applies to an emission point subject to the HON, the more stringent of the requirements takes precedence. As such, if another rule requires control more stringent than the RCT established by the HON, the point cannot be left uncontrolled or undercontrolled as a debit generator in an emissions average. However, if controls are installed after 1990 and achieve more stringent control than is required by the other State or Federal rule, the emission point is eligible as a credit generator in an emissions average, but only for the control above what is required by the other rule.

Even if the HON RCT is the more stringent of two requirements, the source must maintain the control established by the other requirement. If the point were controlled with the HON RCT, both requirements would be met. However, if the source plans to use the point as a debit generator, the point must still meet the non-HON requirement. The emission point can be used as an undercontrolled (according to the HON) debit generator for which the difference in control between the HON and the other requirement is the basis for the debits.

The EPA is considering allowing a limited exception for Federal RACT requirements that apply to points subject to the HON. If the policies published in draft guidance (58 FR 54136) are implemented, points to which RACT requirements apply can be left completely uncontrolled as debit generators as long as both the HAP and non-HAP portion of the VOC emissions are balanced by credit generators.

Comment: One commenter (A-90-19: IV-D-99) stated that the sources should be required to submit emissions averaging proposals to State and local agencies that have delegated air toxics programs, who could then approve or disapprove the averages.

One commenter (A-90-19: IV-D-70) maintained that emissions averaging should not prohibit a State's authority to require review of plant modifications and emissions increases under its State permitting program. Another commenter (A-90-19: IV-D-115) was concerned that the emissions averaging proposal in the HON would allow sources to be constructed without the controls required for every other source in their district.

Response: All of the commenters' recommendations are already required or allowed in the rule. Implementation Plans for emissions averaging are to be submitted to the implementing agency for approval. The HON will not in any way prevent States from enforcing other regulations. One commenter's concern about newly constructed sources has been addressed by excluding the use of emissions averaging by new sources.

Comment: One commenter (A-90-19: IV-F-7.5) stated that a detailed strategy for enforcement must be demonstrated by the EPA so that the delegated authority will be able to construct the necessary legal and monitoring strategies. Another commenter (A-90-19: IV-D-70) requested that the EPA provide detailed guidance to address policy and procedural questions that will arise in implementing an emissions average. The commenter (A-90-19: IV-D-70) also suggested that the agencies that must implement emissions averaging should have significant input concerning the approach of the program.

Response: The provisions for calculating debits and credits, monitoring, recordkeeping and reporting, and enforcement for emissions averaging are quite detailed in the rule in order to eliminate questions and confusion. By "baseline," it is assumed that one commenter is referring to the uncontrolled or undercontrolled emissions for determining debits or to the emission controls in place on Group 2 points on November 15, 1990, which are used in determining credits. Again, the specific procedures and equations for calculating these emissions are included in the rule, and these are the only equations that can be used. Finally, implementing agencies that will be delegated authority for administering the rule and the emissions averaging program have had ongoing opportunities to provide input on how the averaging program was designed, including work group representation, roundtable discussions, and conference calls with the EPA prior to proposal, as well as the opportunity to speak at two public hearings and to submit written comment on the proposed rule and supplemental notice.

Comment: One commenter (A-90-19: IV-D-115) requested that the rule require a demonstration that sources electing to emissions average are in compliance. The commenter (A-90-19: IV-D-115) stated that a procedure for demonstrating compliance must be worked out such that it is easily verified and not overly burdensome, which may not be possible.

One commenter (A-90-19: IV-D-85 and IV-G-6) suggested that a certification should be required that the summation of debits and credits is accurate and that they equal the emissions that would have been emitted had all Group 1 points in the average been controlled.

Response: The source must demonstrate compliance each quarter and submit the demonstration in each Periodic Report. The rule specifies in §63.152(c)(5)(iv) that every fourth quarterly report shall include a demonstration that annual credits are greater than or equal to annual debits and a certification of compliance with all the emissions averaging provisions in the rule. This would be the basis of the annual compliance certification required under Title V of the Act.

Comment: One commenter (A-90-19: IV-D-98) requested clarification regarding penalties imposed by 1990 amendments to the Act of $25,000 per "incident" for violations of emissions limit. The commenter (A-90-19: IV-D-98) claimed it was not clear whether these penalties would be assessed on the basis of the overall plant limit or with respect to each emissions point, nor what the implications of using emissions averaging as a means of compliance are with respect to a violation of the emissions limit.

Response: The rule does not establish an overall plant limit; rather each emission point in a source subject to the HON must comply with control or operating requirements established for each kind of point. If any individual emission point experiences an unexcused excursion, this constitutes a violation that could be subject to the maximum penalty of $25,000 per day of violation. This penalty may be assessed for each violation at each control device per day. (If more than one rule applies to a point or control device, more than one violation may be cited for each point or control device found to be out of compliance.)

These same provisions apply to emission points involved in an emissions average. If any controlled point in an average experiences an unexcused excursion, the point is liable for up to the $25,000 maximum penalty per violation per day. Moreover, if the violation also results in noncompliance with the quarterly averaging check or the annual averaging balance, it counts as yet another violation, which is subject to the penalty. Therefore, the source may be penalized up to a maximum of $25,000 for every day a point experiences an unexcused excursion and another $25,000 for every day of the quarter or year that the average is out of balance. It should be pointed out, however, that the EPA will exercise its enforcement discretion in assessing penalties.

Comment: Two commenters (A-90-19: IV-D-74; IV-D-108) supported the provision that excludes periods of start-ups, shutdowns, and malfunctions from the calculation of monthly credits and debits because of the difficulty and burden of quantifying emissions under such conditions and because they are not representative of operations.

Response: The commenters' support of the EPA's position is appreciated.

Comment: One commenter (A-90-19: IV-D-78) recommended allowing compliance extensions in cases where a credit-generating point shutdown or slowdown occurs or a debit-generating point increases emissions. The commenter (A-90-19: IV-D-78) argued that the extension would provide time to find other credits.

Response: Compliance extensions will not be allowed under the Act (other than an initial case-by-case extension of up to 1 year provided for in the Act if there is prior justification and approval). The provision that sources will be found in violation if quarterly checks or annual averages are violated will motivate the operators to select emission points on units where shutdowns and slowdowns are unlikely.

Moreover, the operators should be prudent enough to have additional credits built into their averages to avoid being in violation. Many commenters have claimed that such conservatism will arise in an emissions averaging scheme.

Comment: One commenter (A-90-19: IV-D-74) complained that the emissions averaging calculations place excessive reliance on actual operating conditions. Two commenters (A-90-19: IV-D-74; IV-D-108) noted that proposed §63.150(f)(2)(ii)(B) requires a re-determination of representative values for flow, concentration, stream molecular weight, and temperature every time there is a change in capacity utilization or in the vent stream flow rate, concentration, molecular weight or discharge temperature. The commenters (A-90-19: IV-D-74; IV-D-108) submitted that this approach will not be useful for batch operations, such as in pharmaceutical manufacturing, because the equation assumes an absolutely constant operation during the month. Hence, the commenters (A-90-19: IV-D-74; IV-D-108) suggested that predictive calculations of emissions should be allowed to demonstrate emissions.

Response: Process vents from batch operations are not subject to the HON and therefore are not eligible for emissions averaging. The equations in emissions averaging allow for variation in operating hours, as monthly operating hours are an input to the equations; however, it is assumed that during periods of operation, the other operating conditions that influence emissions such as flow and concentration are relatively constant. This is generally true for the kinds of emission points allowed in averaging. In situations where operating conditions vary, a source would be prudent to test a number of different likely operating conditions initially and include alternative operating scenarios in their Implementation Plan or operating permit application as specified in §63.151(h) of subpart G of this rule. However, if representative conditions are difficult to establish, these units may not be good candidates for emissions averaging.

2.8.4 State Discretion on Emissions Averaging

Comment: Several commenters (A-90-19: IV-D-49; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-87; IV-D-90; IV-D-99; IV-D-100; IV-D-115; IV-F-7.6) on the proposed rule recommended that State and local agencies be allowed to implement MACT standards without the emissions averaging provisions. Two commenters (A-90-19: IV-D-87; IV-D-115) requested that States be provided with maximum flexibility in implementing and enforcing regulations that are at least as stringent as the EPA standard, and if a State elects not to allow emissions averaging, its equivalent program should be considered more stringent under the program required under Title III of the 1990 Amendments.

Response: The EPA announced in the supplemental notice that it was considering adding language to the HON that would grant State or local agencies the discretion to exclude emissions averaging from their implementation of the HON without having to go through the rule adjustment process specified under section 112(l) of the Act. The final rule has been revised to grant this discretion, thus providing States more flexibility in implementing the HON.

Comment: Nine commenters (A-90-19: IV-K-9; IV-K-10; IV-K-18; IV-K-30; IV-K-37; IV-K-44; IV-K-55; IV-K-63; IV-K-64) supported the provisions proposed in the October 15, 1993 supplemental notice that would grant State and local agencies the discretion to not include emissions averaging in their implementation of the rule without having to go through the rule adjustment process under section 112(l) of the Act.

Four commenters (A-90-19: IV-K-10; IV-K-37; IV-K-55; IV-K-64) maintained that State and local agencies should be allowed to include or exclude emissions averaging provisions, without any EPA review, when implementing the rule. Eight commenters (A-90-19: IV-K-9; IV-K-10; IV-K-18; IV-K-30; IV-K-37; IV-K-41; IV-K-44; IV-K-55) asserted that emissions averaging creates an administrative burden for States, so they should have the discretion to exclude averaging. Five commenters (A-90-19: IV-K-17; IV-K-30; IV-K-37; IV-K-41; IV-K-55; IV-K-63) argued that States should have discretion because averaging is not enforceable, and will not protect public and environmental health. Six commenters (A-90-19: IV-K-1; IV-K-10; IV-K-17; IV-K-37; IV-K-55; IV-K-64) stated that allowing the States increased flexibility to implement the rule is desirable. Two commenters (A-90-19: IV-K-9; IV-K-10) indicated that flexibility to implement regulations consistent with State or local agency policy was necessary because the use of limited resources must be maximized to implement the HON.

Three commenters (A-90-19: IV-K-9; IV-K-44; IV-K-64) maintained that States should have discretion not to include emissions averaging because averaging would make the rule less stringent. Four commenters (A-90-19: IV-K-1; IV-K-30; IV-K-37; IV-K-55) considered it critical to include the State discretion provision because otherwise, States would be forced to adopt the less stringent Federal regulation, which includes emissions averaging.

Several commenters (A-90-19: IV-K-2; IV-K-6; IV-K-7; IV-K-17; IV-K-19; IV-K-20; IV-K-21; IV-K-25; IV-K-27; IV-K-28; IV-K-33; IV-K-34; IV-K-35; IV-K-39; IV-K-40; IV-K-41; IV-K-42; IV-K-45; IV-K-46; IV-K-47; IV-K-50; IV-K-54; IV-K-56; IV-K-61; IV-K-62; IV-K-66) opposed allowing State discretion to not include emissions averaging without going through the section 112(l) rule adjustment process.

Several commenters (A-90-19: IV-K-7; IV-K-20; IV-K-26; IV-K-27; IV-K-34; IV-K-39; IV-K-42; IV-K-46; IV-K-47; IV-K-50; IV-K-54; IV-K-61; IV-K-66) argued that such a provision would allow States to not adopt emissions averaging, which would limit a source's ability to select cost-effective control options. Eight commenters (A-90-19: IV-K-2; IV-K-34; IV-K-42; IV-K-46; IV-K-61; IV-K-56) maintained that States should not be allowed to deny the flexibility that emissions averaging affords. Three commenters (A-90-19: IV-K-34; IV-K-45; IV-K-46) stated that the rulemaking process under section 112(l) gives States ample flexibility to address State equivalency determinations.

Three commenters (A-90-19: IV-K-21; IV-K-42; IV-K-54) argued that allowing State discretion would create an uneven playing field, and that facilities in States without these provisions would be penalized. Another commenter (A-90-19: IV-K-56) suggested that sources would be subject to different HON rules if State discretion not to include emissions averaging were allowed.

One commenter (A-90-19: IV-K-25) opposed allowing State discretion claiming that emissions averaging eases the administrative burden on the State implementing agency. Another commenter (A-90-19: IV-K-62) agreed that emissions averaging places an administrative burden on the State, but this was not sufficient reason to disallow averaging. One commenter (A-90-19: IV-K-39) disagreed with allowing State discretion claiming if emissions averaging costs were not considered, the cost calculation for the regulation was incorrect.

Two commenters (A-90-19: IV-K-39; IV-K-62) argued that States should not be allowed to exclude the emissions averaging provisions if they are not allowed to exclude other provisions. Three commenters (A-90-19: IV-K-1; IV-K-34; IV-K-46) stressed that having the State discretion provision may create regulatory promulgation difficulties for some States. One of the commenters (A-90-19: IV-K-1) suggested that emissions averaging be eliminated in order to avoid the regulatory uncertainty created by the State discretion provision.

Response: The EPA maintains that States should have discretion on whether to allow emissions averaging for a number of reasons. First, the EPA acknowledges that averaging can be more complex to administer than the rule allowing only point-by-point compliance, so allowing averaging could increase the administrative burden, which is an especially important concern for implementing agencies with limited personnel and resources. However, the determination of what constitutes too much administrative burden will differ from State to State. Some States may consider emissions averaging an acceptable strategy for compliance and will retain the program.

Second, the EPA recognized that averaging in the HON could be inconsistent with some States' ongoing air pollution control programs. The EPA supports the use of emissions averaging where it may be appropriate, and maintains again that the program has been designed to be enforceable and protective of health and welfare. However, the EPA also acknowledges that its use must be balanced by the individual needs of State and local agencies that bear the responsibility for administering and enforcing the rule. Furthermore, with the inclusion of these provisions, the EPA does not consider the stringency of the rule with or without averaging is to be an issue. Stringency is discussed in greater detail in the next response in this section.

Allowing this discretion will not create an uneven "playing field" because without this provision, most States already have the ability to exclude emissions averaging through the section 112(l) rule adjustment process encoded in 40 CFR 63.92, 63.93, and 63.94. Rather, the EPA has decided to make excluding averaging more simple by exempting the decision from the section 112(l) rule adjustment process. Including this provision in the HON will reduce paperwork burdens on States, expedite delegation of the rule to States, and remove a potential source of uncertainty for sources subject to the HON.

The EPA does not agree that providing for State discretion in the HON itself is either unnecessary or burdensome for States. While the section 112(l) rule adjustment process would also permit States to choose to implement the HON without averaging, providing for that choice in the HON itself streamlines the process by eliminating EPA review of the choice. In addition, since the section 112(l) rule permits States to make the choice, providing for the exercise of such discretion in the HON itself cannot be viewed as placing any new burdens on States. The provision of an option will not impose a burden or impose new requirements; it increases choice and flexibility. Furthermore, if emissions averaging is removed by a State, the calculation of cost and economic impacts of the rule are not affected because the impacts do not reflect possible use of averaging. The cost impacts presented in the proposal preamble were based on applying an RCT to each Group 1 emission point, while the economic analysis at proposal was based on applying control to every emission point. Specific comments on the cost analyses are addressed in BID volumes 2A and 2B.

Because emissions averaging is an alternative compliance method to the primary control strategy, States should have the discretion to exclude it as opposed to other provisions that are essential to the rule and for which no alternative compliance mechanism has been provided.
Finally, the EPA predicts that instead of creating promulgation difficulties and uncertainties, providing the clarifications in this provision at this time will benefit sources as well as States. Without this provision, sources might be uncertain during the section 112(l) rule adjustment process about whether averaging ultimately would be allowed or not in their State, yet would be given no added time for compliance. The EPA predicts that because of their complex nature, many HON sources will need the full time period allowed for compliance.

Comment: Seven commenters (A-90-19: IV-K-19; IV-K-21; IV-K-22; IV-K-28; IV-K-40; IV-K-47; IV-K-66) warned that to allow States discretion to exclude emissions averaging provisions would conflict with the clear mandate of section 112(l) of the Act. Two commenters (A-90-19: IV-K-35; IV-K-50) reasoned that the section 112(l) process was necessary to ensure that more stringent State programs are consistent with the Act.

Two commenters (A-90-19: IV-K-25; IV-K-26) argued that the EPA should not circumvent the mandate of State legislatures barring their States from enacting more stringent requirements such as the rule without emissions averaging.

On the other hand, three commenters (A-90-19: IV-K-7; IV-K-39; IV-K-62) considered the rule with emissions averaging to be more stringent.

Response: The section 112(l) process requires States to make a demonstration that the State rule is of equivalent or greater stringency to the Federal rule. For a State rule without averaging, one component of this demonstration would be to show that the lack of averaging did not result in the State rule being less stringent than the Federal rule. The EPA has determined that requiring States to make this demonstration would be a needless exercise for the following reason. The final rule defines both point-by-point compliance and averaging as acceptable ways of achieving a MACT level of control. If all sources in a State use the point-by-point compliance method -- as would be the case in a State that implemented HON requirements without averaging -- all sources would be achieving the MACT level of control required by the rule. Under the final rule, no source is required to achieve emissions reductions greater than would be achieved by point-by-point compliance, and no source is required to use averaging. Therefore, a State rule that implements requirements of the HON rule without averaging is equivalent in stringency to the Federal HON rule.

Based on this equivalency finding and the final rule, the EPA is allowing States to implement the HON unchanged without averaging through the same processes available to States that wish to implement the HON unchanged with averaging. Before an operating permit program is in effect in a State, the States may implement the HON without change through a streamlined procedure in §63.91 of the section 112(l) rule. After the State's operating permit program is in effect, the State may implement the HON either with or without averaging without going through any of the section 112(l) rule adjustment process. Also based on this equivalency finding and the final rule, a State seeking EPA approval for a State rule that differs from the HON and lacks averaging will not have to make a demonstration related to averaging as part of their equivalency demonstration.

By providing State discretion in the rule, the EPA is not circumventing any State laws or overriding the decisions of State legislatures that limit the ability of implementing agencies to adopt requirements more stringent than Federal requirements. The EPA maintains that implementing the rule without averaging would not be a decision to implement a more stringent program. Moreover, if a State law or constitution contained provisions, that, in the States' view, prevented the State from adopting the rule without averaging, nothing in the rule would override that provision, i.e., in that situation, the implementing agency would not have the authority to implement the rule without averaging, and the provision allowing the State to choose would not change that.

Comment: Eight commenters (A-90-19: IV-K-6; IV-K-22; IV-K-27; IV-K-34; IV-K-39; IV-K-46; IV-K-47; IV-K-56) argued that allowing State discretion to exclude emissions averaging is contrary to the intent of President Clinton as expressed in Executive Order 12866 and EPA Administrator Carol Browner. Eight commenters (A-90-19: IV-K-6; IV-K-22; IV-K-27; IV-K-34; IV-K-39; IV-K-46; IV-K-47; IV-K-56) maintained that allowing State discretion: (1) defeats the intent of the Executive Order by specifying compliance behavior; (2) ignores the directive that regulations be cost effective; or (3) stifles the ability of the source to use innovative methods.

Response: Allowing State discretion to exclude emissions averaging is not contrary to the executive order or remarks made by the Administrator as suggested by the commenters. The commenters have neglected to point out that in both the order and the Administrator's remarks, the goals of designing cost-effective and flexible regulations, which stimulate innovative control responses, should be met within the larger context of achieving and enforcing the emission reductions required by the Act. Simply by including emissions averaging as an option, both the order and the Administrator's policies have been addressed.

As discussed previously, most States already had the discretion through the rule adjustment process developed pursuant to section 112(l) of the Act to exclude emissions averaging; these new provisions only make the process of doing so simpler. The Act cannot be contrary to the executive order nor can the reverse be true. Moreover, the HON contains many more provisions to increase flexibility and innovation. More than one control technology or method of compliance is available for each kind of emission point. The source is free to develop a unique, innovative method so long as it meets agency approval. Also, the establishment of Group status for emission points focuses the rule on the points that are the most cost-effective to control. All-in-all, the HON, which has been in development since well before the executive order or the Administrator's stated policies were issued, is still in keeping with both sets of guidelines.

2.8.5 Number of Points Allowed in Averages

Comment: Nine commenters (A-90-19: IV-K-1; IV-K-9; IV-K-10; IV-K-18; IV-K-29; IV-K-37; IV-K-44; IV-K-52; IV-K-54; IV-K-55) supported the proposal in the October 15, 1993 supplemental notice to limit the number of emission points allowed in averages. Three commenters (A-90-19: IV-K-9; IV-K-10; IV-K-37) reiterated that allowing too many emission points in an average would be burdensome for State authorities and would not be enforceable.

One commenter (A-90-19: IV-K-18) suggested that the number of points that can be included in averages should be limited to no more than 10 percent of the emission points in the source. Another commenter (A-90-19: IV-K-10) recommended that the maximum number of points in the average be limited to 20 if the source has more than 400 points. Two commenters (A-90-19: IV-K-1; IV-K-44) indicated that if emissions averaging were included, it should be limited to 5 points or 5 percent of the points, whichever is less. Another commenter (A-90-19: IV-K-54) advocated limiting the number of uncontrolled or undercontrolled points to 5 or 10, and allowing 5 to 10 overcontrolled points for each uncontrolled or undercontrolled point. One commenter (A-90-19: IV-K-52) supported limiting the number to 15 points or 5 percent of the total number of points in the source, whichever is greater.

On the other hand, several commenters (A-90-19: IV-K-2; IV-K-7; IV-K-14; IV-K-19; IV-K-21; IV-K-22; IV-K-25; IV-K-26; IV-K-27; IV-K-28; IV-K-33; IV-K-34; IV-K-35; IV-K-39; IV-K-42; IV-K-46; IV-K-47; IV-K-48; IV-K-49; IV-K-50; IV-K-56; IV-K-61; IV-K-64; IV-K-66) opposed limiting the number of points that can be included in an emissions average.

Ten commenters (A-90-19: IV-K-6; IV-K-14; IV-K-21; IV-K-22; IV-K-26; IV-K-35; IV-K-39; IV-K-48; IV-K-56; IV-K-66) declared that limiting the number of points in the average would limit sources' flexibility. Three commenters (A-90-19: IV-K-2; IV-K-30; IV-K-37) warned that it would limit flexibility especially for sources with large numbers of emission points. Six commenters (A-90-19: IV-K-14; IV-K-17; IV-K-26; IV-K-35; IV-K-42; IV-K-66) stated that limiting the number of points would hinder the ability of a source to select cost-effective controls, and warned that the proposed limit would discourage averaging in situations where it was especially useful, specifically those in which one large emission point could be overcontrolled for credit and many smaller points could be left undercontrolled as debit-generators.

Two commenters (A-90-19: IV-K-47; IV-K-66) claimed that only a limited number of facilities would be using emissions averaging, and they would need to include a large number of points for averaging to be effective. Four commenters (A-90-19: IV-K-27; IV-K-34; IV-K-46; IV-K-47) argued that the number of points that can be averaged had already been severely limited by the design of the program, and should not be further reduced. One commenter (A-90-19: IV-K-14) considered a limit to be unfair to sources that have already reduced their emissions.

Six commenters (A-90-19: IV-K-7; IV-K-33; IV-K-39; IV-K-47; IV-K-56; IV-K-66) maintained that implementing an emissions average was more of a burden for the source than the implementing agency, and therefore a limit was not necessary to decrease the implementing agency's burden.

Five commenters (A-90-19: IV-K-26; IV-K-27; IV-K-34; IV-K-46; IV-K-47) opposed limiting the number of points because equipment leaks could not be accommodated in the future. Two commenters (A-90-19: IV-K-14; IV-K-28) cautioned that the limit would decrease the incentive to use pollution-preventing technologies.

Response: The EPA announced in the supplemental notice that it was proposing to restrict the number of points allowed in an emissions average to address concerns for the administrative burden posed by the use of averaging. The proposal requested comment on the feasibility of including such a limit and on what form the limit should take: (1) a restriction on the percentage of total emission points in the source in the range of 5 to 15 percent; or (2) a restriction on the total number of points that can be included in averages in the range of 5 to 15 emission points.

After considering the public comment on the proposal, the final rule has been revised to limit a source to including no more than 20 Group 1 and Group 2 emission points in an emissions average. Where pollution prevention measures are used to control emission points to be included in an average, no more than 25 points can be included. For example, if two points to be included in an average are controlled by the use of a pollution prevention measure, the source can include up to 22 points in their emissions average. However, if six or more points in the average are controlled by pollution prevention, the source can include no more than 25 points in their average.

The EPA concurs that most sources will not find a large number of opportunities to generate cost-effective credits. Hence, it can be anticipated that most averages will involve a limited number of emission points, and imposing a limit should not affect most sources. The EPA rejected the choice of a fixed percentage of points at a source because for larger sources, this could result in hundreds of emission points in averages, which is unacceptable from an enforcement perspective.

The limit of 20 points, 25 if pollution prevention is used, was chosen because the EPA anticipates that most sources will rarely want to include more than 20 points in an average. A higher number of points is allowed where pollution prevention is used in order to encourage pollution prevention strategies, and because the same pollution prevention measure may reduce emissions from multiple points. Otherwise, allowing much more than 20 to 25 points would make enforcement increasingly untenable. Thus, the competing interests of flexibility for sources and enforceability were balanced in this decision.

There may be situations where overcontrolling a point could generate enough credits to offset emissions from a number of smaller debit-generating points, but the limit on the number of points should not discourage averaging in these cases. If one credit generator could balance more than 19 debit generators, the limit would ensure that the source had credits to spare. However, it should be pointed out that this is not the situation for which emissions averaging was designed. The more likely situation is where a source finds it more cost-effective to control some Group 2 points or overcontrol other Group 1 points than it is to apply the RCT to a Group 1 point that would otherwise be required. In other words, averages will probably be constructed by identifying debit generators first and then locating enough credit generators to offset the debit generators' emissions.

The EPA does not agree that the implementing agency would not bear much of the burden of averaging. The source's effort to comply with monitoring, recordkeeping and reporting requirements will be matched equally by the agency's oversight and approval. Nor is future inclusion of equipment leaks in averages a sufficient reason to not restrict averages. The limit addresses present concerns. If equipment leaks can be addressed in averaging at a later date, the limit may be reexamined at that time.

Comment: Two commenters (A-90-19: IV-K-55; IV-K-64) proposed that the number of emission points, as well as which points can be included in the emissions average, should be determined by the State. One of the commenters (A-90-19: IV-K-64) elaborated that the State implementing agency had the best information on what it could monitor or enforce.

Two commenters (A-90-19: IV-K-30; IV-K-37) identified administrative issues that the EPA should address if the number of points is limited. One commenter (A-90-19: IV-K-42) proposed that points to be included in averages be selected on the basis of number of applicable MACT standards, the intermittent nature of operations, the ease or difficulty of controlling the unit, the size and type of control selected, and the proximity of the points.

Several commenters (A-90-19: IV-K-2; IV-K-7; IV-K-19; IV-K-21; IV-K-22; IV-K-25; IV-K-27; IV-K-28; IV-K-33; IV-K-34; IV-K-42; IV-K-46; IV-K-47; IV-K-49; IV-K-62; IV-K-64) argued that there is no rational basis upon which to select points for averaging, and that the EPA's proposal of 5 to 15 percent of the total points appeared to be arbitrary.

Response: A substantial restriction on the rule's implementation such as placing a limit on the number of points to be allowed should not be left to the State without providing them proper authority in the rule itself. The new requirement of a numerical limit provides that authority.

In response to the first of three issues concerning two commenters, as explained in section 2.3.4 of this BID volume, all emission points except for equipment leaks are appropriate for emissions averaging at any source subject to the rule. If the source has more than 20 to 25 points that they wish to include in an average, the source should choose the ones that offer the greatest cost savings, operating flexibility, or that will ensure ongoing compliance.

The other two issues regarding how to change averages are specifically addressed and detailed in §63.151(i) of the final rule. Further discussion of the procedure for making changes to averages may be found in section 2.8.6 of this BID volume. Furthermore, to limit the inclusion of certain points based on their characteristics under case-by-case decisions as one commenter suggested would add unreasonable complexity for both the source and the implementing agency.

Finally, the EPA disagrees that the selection of 20 points, 25 if pollution prevention is used, has no rational basis. The EPA submits that the reasoning presented in the previous response, that any more than 20 to 25 points is untenable from an enforcement perspective, is wholly rational and defensible.

Comment: Two commenters (A-90-19: IV-K-30; IV-K-37) urged the EPA to limit the use of emissions averaging by establishing a mass emission limit, not by limiting the number of emission points.

One commenter (A-90-19: IV-K-10) asserted that wastewater emissions should be excluded from emissions averaging instead of limiting the number of points, as wastewater emissions are difficult to quantify, and the reference control technology, steam stripping, will not guarantee consistent, quantifiable HAP removal.

Response: The EPA considers that placing a mass limit on a source would be difficult to enforce and also add complexity to the rule. This was the experience in past situations where the total mass of emissions was limited, and where the limit was established by predictions of allowable emissions from anticipated operating rates. And as stated previously, all emission points except for equipment leaks are considered appropriate for emissions averaging, including wastewater emission points. The suitability of wastewater emission points for averaging is discussed in greater detail in section 2.3.4 of this BID volume.

Comment: Two commenters (A-90-19: IV-K-1; IV-K-17) argued that no emission points should be averaged, stating that instead emissions averaging should be prohibited. Each of the commenters (A-90-19: IV-K-1; IV-K-17) maintained that emissions averaging was not enforceable, and that the public health would be endangered by allowing averaging, even across a small number of points. One of the commenters (A-90-19: IV-K-17) further counselled that if emissions averaging were allowed at all, the States would be pressured to include too many points in the average, resulting in public exposure to toxic pollutants.

Response: The appropriateness of including emissions averaging in the final rule is discussed throughout this BID volume. Averaging is enforceable and protective of public health as it is an equivalent alternative to compliance on a point-by-point basis. By limiting the number of points allowed and by requiring risk or hazard equivalency, there will be no significant difference in the emissions and the risk or hazard under averaging versus compliance without averaging, even across 20 to 25 points. Finally, with this new provision, a State cannot be pressured into allowing more than 20 to 25 points; such an average cannot be approved at all.

2.8.6 Title V/Implementation Plan

Comment: Two commenters (A-90-19: IV-D-72; IV-D-106) stated that the requirements of Title V of the Act will assure the enforceability of emissions averaging.

Response: Proper implementation of the monitoring, recordkeeping and reporting, and compliance provisions of the rule will ensure enforceability. Part 70 operating permit programs will likely be the vehicle by which the rule is implemented, but an operating permit program, in and of itself, will not ensure enforceability. Hence, the provisions of the HON are as detailed as they are to establish the applicable requirements the rule places on subject sources.

Comment: Seven commenters (A-90-19: IV-D-9; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-117 and IV-F-7.43; IV-F-1.5; IV-D-118; IV-D-124; IV-D-125) objected to the feature in the emissions averaging proposal that would allow sources to change their emissions averaging scheme at any time. Two of the commenters (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12; IV-F-1.5) complained that allowing sources to change their Implementation Plans without prior approval of the State regulatory agency or opportunities for public comment could allow sources to change their Implementation Plans after violations had occurred in order to avoid detection after the fact. Four commenters (A-90-19: IV-D-9; IV-D-118; IV-D-124; IV-D-125) stated that this feature makes it difficult to know what plants have committed to do, and asserted that no State will be able to effectively monitor all the game-playing under the rule. Another commenter (A-90-19: IV-D-85 and IV-G-6) recommended a correction for this feature.

Response: The final rule has been revised to require approval for changes to emissions averages after the Implementation Plan has already been approved. As specified in §63.151(i) of the final rule, a planned change cannot be made until a written update requesting the change has been submitted and approved. Two kinds of changes may be approved after they occur: (1) a change in the Group status of any emission point in an average caused by a process change; and (2) a change in a parameter value such that the value is outside the range specified in the Implementation Plan and the change causes a decrease in the projected credits or an increase in the projected debits. These two kinds of changes must be reported within 90 days after the change becomes known to the source or in the next Periodic Report.

The update to the Implementation Plan would need to include a new projection of debits and credits based on the changes, and would need to demonstrate that credits will still balance debits. The reason the two kinds of changes can be reported after they occur is that a source may not know that they have occurred until after the fact. For example, if a process change is made, the process vent TRE must be recalculated to determine Group status, but measurements needed to perform the calculation cannot be made until after the process change is completed. If either kind of change is not approved, the source may be found in violation.

If the commenter who recommended requiring enforceable limitations on each point was referring to a limitation on total emissions, such a provision was not included in the rule because a mass emission limit could restrict production. The intent of the NESHAP program is to require the maximum achievable level of control on emission points, but not to set a limit on production or prohibit production increases. Therefore, the form of the standard--specified percent reductions from each kind of emission point--is more appropriate. This emission standard established in the rule must certainly be considered an enforceable limitation. The averaging Implementation Plan must specify the reductions to be achieved on each point in the averages, and the provisions of §63.151(i) fully address the process for making and approving changes to an emissions average. Public review and comment are not warranted for approval of Implementation Plan updates because the Implementation Plan is a temporary document that is only relevant until a source's operating permit, which is subject to public review is approved. If an operating permit is already in place, and a source wants to make a change in their emissions average, they would need to follow the procedures specified in the operating permit program.

Comment: One commenter (A-90-19: IV-D-85) was concerned that the current proposal may allow the evaluation and approval of emissions averages in Implementation Plans before the information necessary to check credits and debits estimates is provided. The commenter (A-90-19: IV-D-85) complained that plant operators are not clearly required in §63.151 of the proposed rule to complete the performance test and measurements before the Implementation Plan is submitted. The commenter (A-90-19: IV-D-85 and IV-G-6) stated that the Implementation Plan must be accompanied by the results of all applicable performance tests in order to make meaningful evaluation of emissions estimates technically possible.

The commenter (A-90-19: IV-D-85) did not consider the subsequent Notification of Compliance Status, which does include the results of performance test, as a sufficient substitute for proper information at the time a State evaluates an Implementation Plan, which should be prior to the actual compliance date. The commenter (A-90-19: IV-D-85) complained that the Notification of Compliance Status creates no opportunity for a public hearing and no obligation for the EPA or the State to approve or disapprove a plan, hence, the entire procedure is contrary to the intent of Congress as expressed in Title V of the 1990 amendments to the Act.

Response: Contrary to the commenter's claims, §63.151(d)(6) through (d)(8) of the final rule stipulates all of the information that is needed to check the estimates of projected debits and credits and that must be submitted in the Implementation Plan.

It is true that performance tests are not to be performed by the time the Implementation Plan (or an operating permit application, for that matter) must be submitted. It is not appropriate to require results of performance tests before obtaining Plan approval and receiving permission to construct controls because a source would not have applied controls at the time the Plan is due. Hence, the performance test results are not required until the Notification of Compliance Status is due. If the test results at this time indicate that the source is not operating according to its Implementation Plan, and that debits and credits do not balance, the source will be in violation if it begins or continues such operation. Such a scenario should result in an enforcement action.

The emissions averaging Implementation Plan must be approved by the implementing agency before the source can proceed. However, the opportunity for public notification and review of the average is at the time an operating permit application is being reviewed. The operating permit application will also have to be approved by the implementing agency, and therefore, the entire procedure has been designed according to the intent of Title V of the Act.

Comment: One commenter (A-90-19: IV-D-74) complained that the provision in §63.151(b)(2)(ii) of the proposed rule requiring that the Initial Notification be submitted 180 days in advance of construction or reconstruction could produce substantial delays for some projects, depending on the definition of construction and reconstruction. The commenter (A-90-19: IV-D-74) noted that the Initial Notification requires some substantial technical information and is required under proposed §63.151(c)(2)(i) and (ii) to be submitted with the Implementation Plan if the source elects to use emissions averaging. The commenter (A-90-19: IV-D-74) was concerned however, that the specific control technology for each point and the definition of each point, for that matter, may not be specified 180 days in advance, and construction permits may be granted based on a generic control efficiency requirement without specification of device, hence, the decisions on control device may be made after construction has commenced.

Response: In §63.151(b)(2)(i), the final rule states that existing sources shall submit the Initial Notification within 120 days after the date of promulgation. Furthermore, the substantial technical information referred to by the commenter, specifically control technologies and identification of individual points, is not required in the Initial Notification and instead must be included in the Implementation Plan. The commenter's concern about the provisions for new sources is no longer applicable because new sources cannot use averaging as discussed in section 2.3.2 of this BID volume.

The Implementation Plan for existing sources that plan to use emissions averaging must be submitted at least

18 months prior to the compliance dates specified in §63.100(k) of subpart F of the final rule. For this submittal, it is true that the provisions require submittal of necessary technical information prior to construction of some controls. The intent of the provisions is to require advanced planning for emissions averaging, which is subject to approval. It is not possible for a source or an implementing agency to determine whether an emissions average will balance without knowing specifics of the emission points and planned control devices. Furthermore, a source would need to know detailed control specifications well in advance of the compliance date in order to have the controls constructed, installed, and operating by the compliance date.

Comment: One commenter (A-90-19: IV-D-74) complained that the provision in §63.151(d)(2) of the proposed rule requiring a projection of debits and credits does not specify the level of detail needed to substantiate the projection. The commenter (A-90-19: IV-D-74) recommended that instead of submitting masses of supporting data, the source can maintain such data and should only be required to project debits and credits one or two years in the future. The commenter (A-90-19: IV-D-74) further recommended that sources should be allowed and encouraged to base projected averages on the years immediately prior to the averaging request.

In contrast, one commenter (A-90-19: IV-D-85) suggested that a system that depends on predictions of future emissions is inherently unenforceable, and that even if plant operators could estimate emissions perfectly, they could plausibly second-guess their estimations in court and thwart any attempt at showing a violation of the average.

Response: The rule specifies in great detail the information required to be submitted in the Implementation Plan. The source must supply estimates of all values needed to check the estimates of projected debits and credits. The emissions estimates for averaging submitted in the Implementation Plan can be updated if needed according to the procedures of §63.151(i) of the final rule, so the projections can be based on one or many years. It would not be surprising for the projections to reflect the operation from preceding years; in some cases, the values for making emission estimates can be drawn from historical operating rates.

However, compliance for an emissions average is not based on projections of future emissions. As stated previously, the Implementation Plan can only contain estimates of future instead of actual emissions because the source has not begun operating according its averaging plan. Once the source must be in compliance, the average must be calculated from records of actual production. If the average does not balance each quarter or for the year, the actual data from the compliance period for the average will be the basis for enforcement actions, not the estimates in the Implementation Plan.

2.9 RISK AND INTERPOLLUTANT TRADING

2.9.1 Risk in Emissions Averaging

Comment: Three commenters (A-90-19: IV-D-90; IV-D-100; IV-D-115) were concerned that emissions averaging will not provide sufficient public health protection. Two commenters (A-90-19: IV-D-90; IV-D-100) were concerned that the EPA did not assess the health risks of emissions averaging or consider the public health and environmental impacts of not controlling or undercontrolling HAP emissions. The commenters (A-90-19: IV-D-90; IV-D-100) considered the absence of a requirement to determine the potential health impacts from a facility that averages to be a significant diversion from State program requirements as well as sound public health policy, and contended that any emissions increase associated with averaging must be accompanied by a public health and environmental impact analysis.

Response: As stated at proposal, the emissions averaging program is designed to result in equal or lesser total emissions from any one source compared to point-by-point compliance with the rule. At first, the EPA reasoned that because of the residual risk evaluation required under section 112(f) of the Act, a source would have an incentive to avoid increases in emissions of highly toxic HAP's.

However, the comments received were sufficient to convince the EPA that a demonstration of risk or hazard equivalency is warranted when using averaging. The EPA agrees that since emissions averaging is allowed as an alternative compliance option, it must represent an equivalent strategy in more aspects than just mass reductions. The EPA also recognizes that even though the overall health impacts may not change, risk or hazard that is decreased through averaging at one source cannot be viewed as balancing the possible increased risk or hazard from averaging at another source.

Finally, the EPA acknowledges that many States already have programs for considering risk or hazard in HAP control, which are suitable for evaluating emissions averages. Thus, in the final rule sources are required to demonstrate to the satisfaction of the implementing agency that their use of emissions averaging will not result in any greater risk or hazard than compliance without averaging.

Comment: One commenter (A-90-19: IV-D-103) stated that allowing industry to select points in a facility to control or not to control in emissions averages may have significant unintended effects on worker or community exposures due to the locations of the emission points. One commenter (A-90-19: IV-D-115) warned that overcontrolling a point on one side of a facility and undercontrolling one on another side may actually increase the impact at the offsite receptor. Another commenter (A-90-19: IV-D-85) stated that HAP's emitted near a residence or worksite could be balanced with a point a mile away, which could pose a health threat. Another commenter (A-90-19: IV-D-117 and IV-F-7.43) was concerned that some emission points at or near ground level, such as wastewater and solid waste impoundments, could be undercontrolled, which could increase exposures close to a source.

One commenter (A-90-19: IV-D-45 and IV-F-7.7) suggested that emissions averaging would create high risk areas around industrial areas, and Congress had deleted language that would have created so-called "dead zones" around facilities, so the EPA should not attempt to resurrect a provision which was deleted by Congress.

Response: The EPA maintains that there is an equal likelihood that the opposite of the situations described by the commenters could occur in emissions averages as well. If so, these situations would result in lower impacts and risk to receptors near the source than if the source complied point by point. However, the EPA agrees that trades should not result in increased hazard or risk from any source. In the final rule, the implementing agency can prevent any of the situations described by commenters from occurring by restricting or rejecting emissions averaging plans that do not demonstrate hazard or risk equivalency to the EPA's satisfaction.

It should be noted that one commenter's concern for HAP emissions from solid waste impoundments is addressed because solid waste is outside of the purview of this rule, and thus could not be included in an average.

Comment: One commenter (A-90-19: IV-D-103 and IV-F-7.5) maintained that the concept of trading toxic air pollutants to gain some health or environmental advantage is fundamentally flawed and has not been demonstrated to be an efficient mechanism to achieve an environmental goal. The commenter (A-90-19: IV-D-103) considered emissions averaging flawed because it does not take into account a variety of risk factors and their effects.

Response: The health and environmental benefit associated with the reduction in HAP emissions that will be achieved by the implementation of this rule nationwide is substantial. Emissions averaging will enable this same benefit to be realized at a lower cost and with greater flexibility for the eligible sources. The EPA maintains that the use of innovative strategies such as emissions averaging that take cost or market principles into account is appropriate for achieving environmental goals.

The EPA acknowledges that the averaging program that was proposed without provisions for considering risk or hazard was deficient. Risk equivalency must now be demonstrated according to State procedures or Federal guidelines that will published.

Comment: One commenter (A-90-19: IV-D-117) summarized a modeling exercise they performed regarding emissions averaging and interpollutant trading utilizing four example emission points, where two points were assigned varying emissions reductions and two points had no emissions reduction. The commenter concluded from their study that there was a residual risk of greater than 1 in 1,000,000. Hence, the commenter (A-90-19: IV-D-117) stated that emissions averaging and interpollutant trading will result in greater risk to citizens than compared to controlling all points within a facility.

Response: The commenter did not provide enough supporting information for the analysis they performed to respond adequately to specifics of the claim. In any case, risk analysis is highly dependent on site-specific assumptions. Thus, a case study could be formulated just as easily to show lower risks after averaging and interpollutant trading. No single hypothetical situation can be used to generalize about the outcome from use of emissions averaging in the limited way allowed under the final rule. However, the final rule does require that no emissions average can result in greater risk or hazard than control without averaging.

2.9.2 Interpollutant Trading

Comment: Several commenters (A-90-19: IV-D-9; IV-D-10; IV-D-11; IV-D-35; IV-D-41; IV-D-49; IV-D-51; IV-D-70; IV-D-72; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6; IV-D-87; IV-D-90; IV-D-93; IV-D-94; IV-D-96; IV-D-99; IV-D-100; IV-D-103 and IV-F-7.5; IV-D-103 and IV-F-7.40; IV-D-106; IV-D-115; IV-D-117 and IV-F-7.43; IV-D-118; IV-D-120; IV-D-124; IV-D-125; IV-F-1.5; IV-F-7.1; IV-F-7.2; IV-F-7.6; IV-F-7.7; IV-F-7.10 and IV-F-9; IV-F-7.23; IV-F-7.26; IV-F-7.27 and IV-F-10; IV-F-7.29; IV-F-7.35) objected to the interpollutant trading feature in the emissions averaging proposal for one or more of the following reasons: (1) it does not take toxicity into account; (2) it would endanger public health; (3) it is not protective of worker health and safety; (4) it is inappropriate given various limitations in the scientific understanding of pollutants; and (5) because of the variability of effects, the pollutants covered by the HON are not fungible and cannot be treated as such.

In contrast, several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-57; IV-D-58; IV-D-62; IV-D-68; IV-D-69; IV-D-73; IV-D-74; IV-D-77; IV-D-79; IV-D-82; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-92; IV-D-98; IV-D-104; IV-F-1.6 and IV-F-6; IV-G-1) supported the use of nonweighted emissions averaging, whereby HAP's from a source may be averaged on a one-to-one basis without regard to toxicity. Seven commenters (A-90-19: IV-D-32; IV-D-57; IV-D-69; IV-D-77; IV-D-79; IV-D-86; IV-D-104) submitted that the EPA should not restrict averaging of different pollutants, so long as the pollutants are listed in section 112(b) of the Act. Six commenters (A-90-19:

IV-D-62; IV-D-68; IV-D-73; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-98; IV-F-1.6 and IV-F-6) claimed that an emission-weighted scheme would add complexity to the program making it very difficult to implement and determine compliance with the HON. One commenter (A-90-19: IV-G-1) warned that toxicity screens would consume intolerable resources and make averaging impractical. Two commenters (A-90-19: IV-D-32; IV-D-57) cited various limitations in the scientific understanding of pollutants, which they claimed makes adjusting trades according to toxicity impossible or inappropriate.

Two commenters (A-90-19: IV-D-58; IV-D-62) contended that there is no evidence that facilities may choose to overcontrol less hazardous pollutants and undercontrol more hazardous pollutants. One commenter (A-90-19: IV-D-62) stated that operational considerations govern a facility's process management decisions and there is no incentive in the rule to engage in aberrant behavior. Another commenter (A-90-19: IV-G-17) suggested that a decision to average will be based on technical and economic criteria, and toxicity is not a factor in whether an emission point is difficult and/or costly to control. Six commenters (A-90-19: IV-D-32; IV-D-57; IV-D-62; IV-D-73; IV-G-1; IV-G-17) claimed that sources have other strong incentives to control the most hazardous emissions such as: protecting community and worker safety; increasing product safety; controlling pollution in other media; addressing State air toxics laws; reducing residual risks; and upcoming rulemakings as in section 112(g).

Response: As stated at proposal, the EPA considers it appropriate to allow interpollutant trading, i.e., to allow emissions of different HAP's to be included in emissions averages. To restrict averaging to only points emitting the same HAP would be excessively restrictive in this industry where emission streams are generally a mixture of different HAP's. The requirement in the final rule of a risk or hazard equivalency demonstration should help to allay concerns for public health and welfare. Worker health and safety continues to be guarded by other Federal statutes, and allowing averaging of different HAP's will not compromise that protection.

The EPA is also sensitive to the charges that a HAP-speciated averaging system would consume additional resources and increase the administrative burden for both sources and implementing agencies. However, many States already require risk or hazard examinations, and so would not consider the demonstration of risk or hazard equivalency an additional burden. Moreover, the limit on the number of points that can be included in averages should minimize any additional burden and cost.

The EPA agrees with the claims that sources have no incentive to propose emissions averages that could increase risk or hazard, and stated as much at proposal. However, the EPA was equally persuaded that a source's decision to average will be based largely on technical and economic criteria, and so recognized the necessity of elevating risk or hazard as a consideration in averaging as well. If sources will control the most hazardous emissions first for the reasons commenters stated, then they need not fear that a risk or hazard examination would severely limit their averages.

The EPA acknowledges that some limitations in the scientific understanding of HAP toxicity exist. However, the EPA does not believe the limitations are substantial enough to make interpollutant trading impossible or to bar implementing agencies from making adequate risk and hazard evaluations.

2.9.3 Legal Issues

Comment: Four commenters (A-90-19: IV-D-49; IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-96; IV-F-1.5) maintained that there is no legal justification for interpollutant trading.

Two commenters (A-90-19: IV-D-49; IV-D-85 and IV-F-7.39 and IV-F-12) argued that Congress carefully considered the issue of interpollutant trading when it passed the 1990 Amendments and did not authorize it under section 112(d) of the Act as amended. One of the commenters (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) recommended that the EPA should not put itself on scientifically untenable terrain by allowing interpollutant trading without a clear legal mandate to do so. The other commenter (A-90-19: IV-D-49) added that section 112(g) of the Act permits trading between different pollutants; however, Congress required that pollutant reductions used to meet the offset provision come from pollutants "deemed more hazardous" than the pollutant(s) being offset. The commenter (A-90-19: IV-D-49) further stated that section 112(g)(1)(B) specifically disallows interpollutant trading in certain circumstances. The commenter (A-90-19: IV-D-49) suggested that if the EPA were to apply the section 112(g) provision that allows interpollutant trading to section 112(d), such a program must conform to the 112(g) restrictions that: (1) an increase in a HON pollutant must be compensated for by a reduction of equal or greater amount of a HON pollutant of greater toxicity; and (2) pollutants for which the EPA cannot demonstrate a safety threshold can only be traded by requiring an equal or greater reduction in the amount of the same pollutant(s).

One commenter (A-90-19: IV-D-103) stated that the MACT program, while technology-based, is driven by the principles of protecting the environmental and human health. Another commenter (A-90-19: IV-D-115) stated that although they recognize that factors contributing to exposure and health risks are generally associated with risk-based programs rather than technology-based programs such as MACT, the standard technology-based program requires control across the board, and emissions averaging introduces the risk components.

Three commenters (A-90-19: IV-D-49; IV-D-51; IV-D-99) were not convinced by the argument given in the proposal preamble that the potential for additional regulation under section 112(f)(2)(A) would provide sufficient incentive to ensure that increases in the emissions of more toxic substances do not occur. Three commenters (A-90-19: IV-D-51; IV-D-94; IV-D-99) stated it is more likely that owners or operators will choose the most economical operation rather than minimizing residual risks. One commenter (A-90-19: IV-D-115) acknowledged that residual risk will ultimately be examined but still considered 8 years of exposure unacceptable.

In contrast, several commenters (A-90-19: IV-D-32; IV-D-57; IV-D-58; IV-D-68; IV-D-73; IV-D-74; IV-D-82; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-98; IV-D-104; IV-F-1.6 and IV-F-6; IV-G-1) considered any adjustment to emissions averaging on the basis of risk or hazard to be inconsistent with the statutory requirement in section 112(d) of the Act to base MACT standards on achievability of control technologies instead of risk to public health or the environment.

Four commenters (A-90-19: IV-D-32; IV-D-57; IV-D-74; IV-D-104) rejected restricting interpollutant trading on the basis of risk. Three commenters (A-90-19: IV-D-32; IV-D-57; IV-D-58) claimed that the statute conspicuously excludes risk from the list of factors to be considered in the establishment or implementation of MACT under section 112(d). Three commenters (A-90-19: IV-D-32; IV-D-73; IV-G-1) asserted that other sections of the Act, sections 112(g) and 112(i)(5), specifically call for some consideration of risk while section 112(d) does not, and these considerations should not be imported where not authorized. Three commenters (A-90-19: IV-D-82; IV-D-98; IV-G-1) claimed that the whole point of technology-based standards was to replace the old risk-based approach to HAP control. Four commenters (A-90-19: IV-D-32;

IV-D-57; IV-D-68; IV-D-104), referring to the proposal preamble, pointed out that the EPA recognizes that it does not have an appropriate scientific foundation on which to impose risk-based limits on interpollutant trading.

Five commenters (A-90-19: IV-D-32; IV-D-74; IV-D-77; IV-D-92; IV-D-104) noted that the Act requires MACT to control categories of sources, not particular pollutants. Three commenters (A-90-19: IV-D-32; IV-D-74; IV-D-104) claimed that Congress intentionally changed the NESHAP program to control sources, not pollutants; one of the commenters (A-90-19: IV-D-32) referenced Senate Bill S.1630 in making this claim. Hence, two commenters (A-90-19: IV-D-32; IV-D-57) argued that the proposed RCT's should apply to all SOCMI sources, even though no two such sources emit precisely the same quantities and mixes of pollutants.

One commenter (A-90-19: IV-D-82) interpreted the legislative history of the 1990 amendments to the Act to suggest that any analysis of emissions averaging should take place when the MACT standard is set, and not on a case-by-case basis. The commenter argued that once the EPA concludes that emissions averaging will produce better environmental results, its use should be freely allowed without any subsequent case-by-case assessment. Moreover, the commenter suggested that once the assessment is made that emissions averaging will reduce risk, the burden of showing otherwise should be placed on those who oppose such a finding. The commenter added that if such a showing is made, averaging should not be banned, rather, safeguards should be imposed to assure that the trades would be environmentally beneficial. In addition, the commenter claimed that the legislative history suggests that any assessment of non-technology factors should be more of a "screening" review than the kind of hyper-detailed analysis proposed by the EPA.

Ten commenters (A-90-19: IV-D-32; IV-D-57; IV-D-58; IV-D-62; IV-D-68; IV-D-73; IV-D-74; IV-D-82; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-104) pointed out that toxicity of pollutants and risk will be taken into consideration when the EPA addresses residual risk under section 112(f) of the Act. Five commenters (A-90-19: IV-D-32; IV-D-57; IV-D-62; IV-D-73; IV-D-82) suggested that because of section 112(f), sources have little incentive for emissions averaging to result in less risk reduction than application of RCT.

Response: The EPA considers interpollutant trading to be permissible under an emissions averaging program. The floor determination and MACT standards under section 112(d) of the Act are technology-based and are not based on an evaluation of the relative toxicity of the pollutants being emitted. Thus, even without averaging, the applicable standards do not differentiate on the basis of the toxicity of the pollutants being emitted and do not take into account the differing composition of streams of pollutants being emitted from the emission points subject to control. For example, process vents are subject to the same MACT standards regardless of the toxicity of the HAP or combination of HAP's being emitted. As the basic standard is a technology-based standard that does not vary with the specific HAP's being emitted, there is no statutory requirement to impose restrictions on interpollutant trading when averaging is permitted as an alternative compliance option.

While the EPA does not find that the Act requires that interpollutant trading be restricted when averaging is permitted, the EPA believes it has the authority under the Act to establish provisions as part of the alternative averaging system that will assure that there is no increase in risk or hazard as a result of a source's election of the averaging mechanism. The fact that section 112(f) of the Act contemplates that residual risk will be evaluated at a later time and that other provisions specifically call for the consideration of risk does not mean that the EPA is precluded from considering risk or hazard in other contexts. Consequently, the EPA maintains that it has the authority to address risk and hazard in the averaging program through a procedure such as the one adopted in the final rule--the requirement that sources that elect to use averaging must demonstrate, to the satisfaction of the implementing agency, that compliance through averaging would not result in greater risk or hazard than compliance without averaging.

With respect to the comments regarding section 112(g) of the Act, the EPA notes that section 112(g) is designed to fill a gap before a MACT standard is in effect and to minimize increases in risk during that period. Consequently, once a MACT standard has been promulgated, as is being done with the HON, the provisions of section 112(g) do not limit interpollutant trading. Moreover, the EPA is confident that the requirement adopted in the final rule regarding the demonstration by the source to the implementing agency that compliance through averaging will not increase risk or hazard, will ensure that the use of averaging by an individual source will not result in an increase in risk or hazard attributable to the emissions from that source.

2.9.4 Approaches for Toxicity Weighting

Comment: Four commenters (A-90-19: IV-D-70; IV-D-87; IV-D-93; IV-D-99) stated that interpollutant trading should not be allowed until a system is developed for ensuring that trading will not increase risk to public health. Two commenters (A-90-19: IV-D-51; IV-D-94) stated that toxicity of the emitted HAP's must be taken into account for emissions averaging to be as stringent as the non-averaging HON MACT standard.

Three commenters (A-90-19: IV-D-70; IV-D-99; IV-F-7.6) declared that if interpollutant trading must be a part of the

HON, the EPA must base it on a credible system for hazard ranking that accounts for the varying quality of data regarding health effects. Two commenters (A-90-19: IV-D-90; IV-D-100) recommended that the EPA not propose emissions averaging until an acceptable scheme that accounts for the range of adverse health effects and exposures associated with stationary source emissions has been developed, peer reviewed by external scientists, and subject to public review process through the Federal Register notification. The commenters (A-90-19: IV-D-90; IV-D-100) also stated that a significant amount of research is still required on the non-cancer health effects of carcinogens before it can be assumed that emissions averaging is, in fact, equivalent to controlling toxic emissions. Two commenters (A-90-19: IV-D-85; IV-D-99) urged the EPA to take an extremely conservative approach to toxicity weighting.

Response: The EPA agrees that emissions averaging should not pose any increased health risk or hazard, a concern which should be considered in determining whether an emissions average is an equivalent compliance alternative. Hence, the final rule was revised to require sources to demonstrate that their use of averaging will not result in any greater risk or increased hazard relative to compliance without averaging. The use of the term "hazard" encompasses consideration of the toxicities of the different HAP's.

The EPA maintains that adequate methodologies for assessing and comparing risk or hazard are available. Equivalency can be demonstrated according to either procedures used by the implementing agencies or a Federal technical support document that will be published.

Comment: Several commenters (A-90-19: IV-D-45; IV-D-51; IV-D-56; IV-D-58; IV-D-62; IV-D-72; IV-D-82; IV-D-85; IV-D-87; IV-D-89; IV-D-99; IV-D-106; IV-D-115; IV-D-117 and

IV-F-7.43; IV-F-7.6) discussed approaches for adjusting for toxicity in interpollutant trading.

Six commenters (A-90-19: IV-D-51; IV-D-85; IV-D-87; IV-D-99; IV-D-115; IV-D-117 and IV-F-7.43) urged that a hazard ranking or risk equivalency system should account for carcinogenicity, non-carcinogenic toxicity, different exposure pathways, target endpoints; half-lives in the environment; and bioaccumulation. One commenter (A-90-19: IV-D-87) stated that credits should be adjusted based on a pollutant hazard ranking rather than factors such as kinds of emissions, number of emissions, weight of emissions released, or a lower factor for other credit-generating activities. Three commenters (A-90-19: IV-D-51; IV-D-85; IV-D-115) stated that debits of a hazardous chemical should not be balanced by credits of a less hazardous chemical. One commenter (A-90-19: IV-D-115) stated that trades should not be allowed between carcinogenic and non-carcinogenic compounds, nor between organic and inorganic HAP's. Another commenter (A-90-19: IV-D-117 and IV-F-7.43) submitted that points emitting carcinogenic, mutagenic, or teratogenic pollutants should be controlled before non-carcinogenic ones, but no trading of a HAP should be allowed unless sufficient data is collected to fully characterize its impact. One commenter (A-90-19: IV-D-99) presented a STAPPA and ALAPCO resolution on Interpollutant Trading under Title III of the 1990 Amendments, which recommended characteristics that a credible hazard ranking system should include.

Two commenters (A-90-19: IV-D-72; IV-D-106) recommended that the EPA use the same process for developing relative hazard potential for HAP's or one similar to the process used to determine offsets under section 112(g).

Five commenters (A-90-19: IV-D-56; IV-D-58; IV-D-62; IV-D-82; IV-D-89) suggested that one possible approach for adjusting for toxicity could be based on the high risk pollutant list and toxicity-weighting factors used in the EPA's Early Reductions Program promulgated pursuant to section 112(i)(5). One commenter (A-90-19: IV-D-62) considered this a superior approach to toxicity ranking because it provides a consistent means of addressing the "relative toxicity" issues across the many section 112 programs the EPA will be implementing.

Response: The EPA thanks commenters for their input on this issue, and intends to take these and other recommendations into account before issuing the final technical support document for making hazard or risk equivalency determinations. Some of the factors or procedures may already be taken into account in existing State risk evaluation procedures.

Comment: Five commenters (A-90-19: IV-D-70; IV-D-85; IV-D-93; IV-D-99; IV-F-7.6) recommended the first approach for toxicity weighting suggested in the HON proposal preamble, which is based on the "more hazardous pollutant." One commenter (A-90-19: IV-D-70) recommended the "more hazardous pollutant" approach if a greater than 1:1 reduction is required. Another commenter (A-90-19: IV-D-93) further declared that the first approach must be incorporated if interpollutant trading is allowed because emissions averaging can only work if it provides not only for equal or greater emission reductions, but also for equal or greater public health protection.

In contrast, one commenter (A-90-19: IV-D-82) opposed the first approach because of its complexity, arguing that "hazard" is not a linear concept, rather, it depends on the type and quality of the data and the type of health effect at issue.

One commenter (A-90-19: IV-D-89) was inclined to support the second alternative approach, which is based on the "more hazardous quantity," and suggested that it could be based on weighting factors similar to the Early Reductions Program where each HAP is assigned a factor based on toxicity and baseline.

However, four commenters (A-90-19: IV-D-70; IV-D-82; IV-D-99; IV-F-7.6) opposed the second approach discussed in the proposal preamble for reasons including: (1) it would be difficult to establish a more hazardous quantity without case-by-case modeling and review of impacts; (2) it relies far too heavily on the small data base that exists to characterize the toxicity of pollutants; (3) it is virtually impossible to determine factors for different toxic endpoints; and (4) it would require a value judgement regarding which health effects are most critical which is especially problematic because each HAP has multiple health endpoints. One of the commenters (A-90-19: IV-D-99) added that the fourth problem listed would exist in the "more hazardous pollutant" approach as well, although the uncertainty is smaller because the extra step of deciding how much more of an emission is necessary to obtain a more hazardous quantity is not required. Two of the commenters (A-90-19: IV-D-99; IV-F-7.6) claimed that the EPA has already determined the "more hazardous quantity" approach to be flawed and is no longer considering it for inclusion under the regulations for section 112(g).

One commenter (A-90-19: IV-D-82), who opposed both approaches discussed in the proposal preamble, argued further that emissions streams often occur as mixtures of different HAP's, which makes determining the "more hazardous" of two streams under the first approach as difficult as determining the overall "hazard balance" under the second. The commenter (A-90-19: IV-D-82) was concerned that in both cases, the complexity and effort of performing the calculation and the chances of disputes with regulatory agencies will deter facilities from attempting an emissions trade.

Response: Two approaches for addressing toxicity and hazard in interpollutant trading were presented at proposal for comment. The first approach was to restrict averages based simply on "the more hazardous pollutant." The second approach proposed coupling "the more hazardous pollutant" with the actual mass of emissions to establish "the more hazardous quantity" as the basis on which to restrict interpollutant trades. As stated in the supplemental notice, after receiving input from public comment, it was concluded that neither of the two approaches could be developed in sufficient detail to provide the basis for final rulemaking. This conclusion stimulated the decision to seek additional comment on whether to require risk or hazard determinations, which would be made according to State procedures or a Federal technical support document. As discussed previously, the final rule now contains this provision for demonstrating risk or hazard equivalency, and guidance for making these determinations will be published.

Comment: Two commenters (A-90-19: IV-D-45; IV-D-51) suggested that classes of chemicals be defined with a discount factor assigned based on the relative toxicity between the credits and debits, and suggested specific discounting scenarios. One commenter (A-90-19: IV-D-115) suggested that a discount factor could be used to mitigate the impact of interpollutant trades, but added that the factors alone will not guarantee that the impact does not increase.

Response: A credit discount factor has been included in the rule for reasons other than to adjust for toxicity as discussed in section 2.6 of this BID volume. Although the form of a technical support document for making equivalency determinations has not yet been established, the EPA does not consider discount factors to be the appropriate method to address interpollutant trading. This is not to say that a risk or hazard weighting factor for different HAP's in the form of a percentage will not be allowed, but to avoid confusion, the term "discount factor" will not be associated with the risk or hazard equivalency determination.

2.9.5 Problems with Toxicity Weighting

Comment: Several commenters (A-90-19: IV-D-32; IV-D-51; IV-D-57; IV-D-85 and IV-F-12; IV-D-90; IV-D-99; IV-D-100; IV-D-103 and IV-F-7.5; IV-D-103 and IV-F-7.40; IV-D-115; IV-D-120; IV-F-7.6; IV-F-1.5; IV-F-7.27 and IV-F-10) cited various limitations in the scientific understanding of pollutants including: varying health and environmental effects; varying public health threat; the amount and quality of data available to categorize risk; lack of toxicological understanding of toxicity mechanisms; the lack of a methodology to compare such dissimilar pollutants; or the lack of a means of equating various toxic end-points including immunotoxicity, fetotoxicity, reproductive and developmental toxicity, and others that can vary according to age, sex, and other factors.

Response: It is acknowledged that the scientific understanding of the many aspects of HAP toxicity listed by commenters is incomplete in certain respects. However, the EPA does not agree that the limitations are so great as to prevent agencies from making acceptable risk or hazard equivalency comparisons for the purpose of averaging. A number of States have designed and implemented their own programs requiring risk assessments of sources before approving permits to operate. In some cases, these programs have been in place for a number of years.

The States have drawn on EPA and other Federal guidance and their own resources to make risk or hazard determinations and comparisons in permitting sources of HAP emissions. The EPA agreed with comments included elsewhere in this section that States that already have their own programs for evaluating risk should be able to use them for emissions averaging in the HON. Moreover, these States' experience in addition to Federal experience and resources are transferable to all other States in the form of guidance, which can continually be updated as the scientific understanding continues to improve.

Comment: One commenter (A-90-19: IV-D-85) contended that even if a scientifically acceptable toxicity weighting is possible, it would not provide a stable framework for regulation because the weighting would have to be adjusted as more is learned about the regulated pollutants.

One commenter (A-90-19: IV-F-7.5) noted that the current methods for comparing carcinogens are so weak and bounded by uncertainty that an efficient "marketplace" based just on cancer risk is inconceivable. One commenter (A-90-19: IV-D-103) claimed that the notion that toxicity can be equated using some measure based on the risk-specific cancer potency (i.e., the slope of the dose response curve for cancer) is absurd. The commenter (A-90-19: IV-D-103) added that using only cancer potency over the lifetime of an individual ignores all the other health effects, interactive effects, and non-human endpoints. The commenter (A-90-19: IV-D-103 and IV-F-7.5) stated that because changing the ratio of chemicals in complex mixtures can change the health effects, allowing trades based on one valuation, even if it were accurate for cancer, ignores the possibility of other effects being induced due to the change. The commenter (A-90-19: IV-D-103 and IV-F-7.5) predicted that in a very few years, through advances in molecular biomonitors, it will be possible to ascribe cause and effect to particular diseases and chemical exposures, and so trading pollutants will in time be traceable in terms of the mixture of chemicals which contributes to the diseases.

Another commenter (A-90-19: IV-F-7.40) added that to account for toxicity, all exposure routes must be known, including the atmospheric direct exposure route and the atmospheric deposition routes onto soil, water, and food that reach human and nonhuman endpoints. However, the commenter (A-90-19: IV-F-7.40) maintained that this data is also not available, so a toxicity-based approach is not possible.

Response: The first commenter's concern emphasizes the advantage of issuing guidance for making risk or hazard determinations at this time instead of including provisions for adjusting interpollutant trades in the formal rulemaking. As new information is made known, implementing agencies can take advantage of it immediately without having to amend rules.

The concerns about an efficient "marketplace" and adjustments to interpollutant trading based on cancer risk but not other health endpoints, and exposure routes that are not taken into consideration are understandable for large quantities and complex mixtures of HAP emissions. However, because the scope of emissions averaging has been limited to decrease administrative complexity, the emissions associated with averaged points will also be limited compared to the source as a whole. Hence, there should be little cause for the specific concerns stated here especially with the added provision to consider risk or hazard.

2.9.6 Inclusion of Risk in Averaging Determinations

Comment: One commenter (A-90-19: IV-D-99) on the proposed rule urged that the regulation in no way prohibit State and local agencies from requiring risk assessments or other procedures as part of the process for reviewing averages.

Seven commenters (A-90-19: IV-K-1; IV-K-10; IV-K-30; IV-K-37; IV-K-44; IV-K-55; IV-K-64) supported the proposal in the supplemental notice to require sources that elect to use averaging to demonstrate, to the satisfaction of the agency implementing the rule, that compliance through averaging would not result in greater risk than compliance without averaging.

The commenters (A-90-19: IV-K-1; IV-K-10; IV-K-30; IV-K-37; IV-K-44; IV-K-55; IV-K-64) maintained that consideration of risk would better ensure that public health is protected.

In contrast, several commenters (A-90-19: IV-K-2; IV-K-7; IV-K-14; IV-K-19; IV-K-20; IV-K-21; IV-K-22; IV-K-25; IV-K-26; IV-K-27; IV-K-33; IV-K-34; IV-K-39; IV-K-42; IV-K-46; IV-K-47; IV-K-48; IV-K-49; IV-K-54; IV-K-56; IV-K-61; IV-K-62; IV-K-66) opposed the proposal to require risk equivalency demonstrations in emissions averaging.

Several commenters (A-90-19: IV-K-2; IV-K-14; IV-K-19; IV-K-21; IV-K-22; IV-K-25; IV-K-26; IV-K-27; IV-K-33; IV-K-34; IV-K-39; IV-K-42; IV-K-45; IV-K-46; IV-K-47; IV-K-49; IV-K-54; IV-K-56; IV-K-62; IV-K-66) argued that it is inappropriate to address risk under a section 112(d) standard, as the Act specifies that the NESHAP are to be technology-based, and risk determinations should be made under section 112(f) following the implementation of the technology-based standards.

Four commenters (A-90-19: IV-K-34; IV-K-39; IV-K-46; IV-K-48) objected to the risk equivalency demonstration requirement on the basis that there is no compelling evidence that the use of emissions averaging will create additional risk.

Six commenters (A-90-19: IV-K-6; IV-K-26; IV-K-27; IV-K-34; IV-K-46; IV-K-50) opposed requiring a risk equivalency demonstration because it would be burdensome to the source. Four of the commenters (A-90-19: IV-K-6; IV-K-26; IV-K-34; IV-K-46) further stressed that the burden posed by risk equivalency demonstrations would be a disincentive for using emissions averaging.

Three commenters (A-90-19: IV-K-19; IV-K-27; IV-K-54) stated that the EPA and the National Academy of Science are reviewing current risk assessment approaches as required by section 112(o), and that it would be useless to base a regulation on current methodologies, as they are likely to change as a result of these studies.

Three commenters (A-90-19: IV-K-21; IV-K-27; IV-K-66) advocated the development of a threshold level below which risk equivalence would not need to be demonstrated. Two commenters (A-90-19: IV-K-34; IV-K-46) complained that there is no threshold of risk provided in the risk equivalence proposal, even small changes in risk would need to be addressed, regardless of the insignificance of the baseline risk level or of the change in risk.

Response: The EPA introduced the issue of including risk determinations in averaging to a large part in response to public comment such as the first commenter. The support for the proposal in the supplemental notice was sufficient to warrant revising the final rule to include provisions requiring risk or hazard equivalency demonstrations for emissions averages.

It is appropriate to introduce the consideration of risk in emissions averaging. The floor and the RCT's for the rule were determined without any consideration of risk. On the other hand, averaging represents an alternative to the technology-based system of point-by-point compliance, and as an alternative, must be demonstrated to result in equivalent control. This demonstration can consider risk without violating the intent of section 112(d) of the Act.

It is possible that in some cases having to make a risk equivalency demonstration may so increase the cost of averaging that it is no longer more cost-effective to average, but the EPA does not think this is likely in most cases because of the limited size of most averages. Even though it is difficult to predict whether averaging would be more likely to increase or decrease risk, any possibility of increased risk would represent HAP control that is not completely equivalent to point-by-point compliance.

The Act contains no requirement that risk or hazard considerations be delayed until after the study of risk assessment by the National Academy of Sciences is completed. By issuing guidance, the suggested methodologies and procedures can be revised when the study becomes available. The statutory requirements and deadlines remain in effect, the study notwithstanding.

The issue of threshold levels can be addressed in the guidance as well or be determined by the implementing agency. If the agency is satisfied that a *de minimis* risk level should be established, it can be included in individual State programs.

Comment: Seven commenters (A-90-19: IV-K-1; IV-K-17; IV-K-44; IV-K-49; IV-K-55; IV-K-63; IV-K-66) recommended that instead of requiring a risk equivalency demonstration, the EPA should eliminate emissions averaging to protect public health. The commenters (A-90-19: IV-K-1; IV-K-17; IV-K-44; IV-K-49; IV-K-55; IV-K-63; IV-K-66) cautioned that there is no adequate methodology for assessing risk, and that the lack of information regarding exposure to toxic chemicals prevents the determination of toxic equivalency for the purpose of averaging HAP's. Four of the commenters (A-90-19: IV-K-1; IV-K-30; IV-K-44; IV-K-55) supported the risk equivalency demonstration, but preferred that emissions averaging be eliminated.

Response: As just discussed throughout the previous sections, the EPA considers risk assessment methodologies and toxicological information to be developed sufficiently to make adequate risk and hazard equivalency determinations. The rationale for allowing the use of emissions averaging is repeated throughout this BID volume. The flexibility that is afforded sources by its use is important, and the safeguards such as this new requirement and others maintain the program as a reasonable and responsible one.

Comment: Eight commenters (A-90-19: IV-K-2; IV-K-10; IV-K-18; IV-K-19; IV-K-28; IV-K-37; IV-K-40; IV-K-64) stated that the EPA should provide standard guidance for risk equivalency determinations. One commenter (A-90-19: IV-K-10) listed items that the EPA guidance should address. Another commenter (A-90-19: IV-K-28) recommended that the guidance should resemble the EPA's air quality modeling guidance, which defines different approaches applicable in different circumstances. Two commenters (A-90-19: IV-K-37; IV-K-55) stressed that States should be involved in developing the guidance. One commenter (A-90-19: IV-K-44) declared that EPA guidance should establish a presumptive minimum process that States must meet in assessing the risk equivalency demonstration.

Response: A Federal technical support document will be available after rule promulgation. As discussed previously, all of the recommendations received will be taken into careful consideration in drafting the guidance, and if need be further input from different resources such as State agencies may be solicited at a later time. The EPA will not establish a presumptive minimum process for making determinations, however. The provisions of the final rule are that risk or hazard equivalency demonstrations are to be made to the satisfaction of the implementing agency. As such, the process is left entirely at the discretion of the implementing agencies. They are free to use whatever methodologies and procedures they choose including the guidance to be issued.

Comment: Nine commenters (A-90-19: IV-K-7; IV-K-9; IV-K-19; IV-K-30; IV-K-37; IV-K-39; IV-K-44; IV-K-55; IV-K-64) agreed that State and local agencies should be allowed to use or develop their own policies and assessment tools for analyzing risk equivalence. One commenter (A-90-19: IV-K-19) favored allowing the source to select whether to comply with State or Federal risk assessment guidelines.

One commenter (A-90-19: IV-K-39) noted that States should be authorized to set a ceiling on risk by using their existing fenceline monitoring programs for BACT for toxics (T-BACT) or related assessments. The commenter (A-90-19: IV-K-39) asserted that risk assessment could not be based on a single emission point, but must be based on all points.

One commenter (A-90-19: IV-K-35) preferred to address the issue of averaging with different pollutants as discussed in the original proposal, according to the relative hazard of the pollutant.

Response: The EPA appreciates the support for the position that States should be allowed to continue using already established processes or to select and develop their own programs. The source is not allowed to follow examples in the Federal technical support document over established State procedures unless the implementing agency provides for such a choice.

However, a State cannot use the HON as its authority to place a ceiling on risk unless the risk associated with point-by-point compliance is the ceiling to which the commenter is referring. That is, as long as a source can demonstrate to the satisfaction of the agency that an emissions average poses no greater risk or hazard than if the same points had been controlled point-by-point, the average could be approved. As such, risk assessments would not be based on a single point, but rather all the points included in an average.

Comment: Four commenters (A-90-19: IV-K-18; IV-K-30; IV-K-37; IV-K-64) supported requiring the identification of all HAP's in emission streams when assessing risk. Three of the commenters (A-90-19: IV-K-30; IV-K-37; IV-K-64) stated that the expertise to speciate HAP's in emission streams is available, and that it is currently required for permits, annual emission fees, and major source applicability determinations. The commenters (A-90-19: IV-K-30; IV-K-37;

IV-K-64) further argued that speciating HAP's would not entail new data collection and would not be overly burdensome. One of the commenters (A-90-19: IV-K-37) considered speciation of HAP's necessary to reduce public exposure to risk.

In contrast, two commenters (A-90-19: IV-K-21; IV-K-26) opposed a requirement to require the identification of all HAP's in assessing risk. Four commenters (A-90-19: IV-K-21; IV-K-26; IV-K-54; IV-K-55; IV-K-62) stated that it would be very burdensome to identify and quantify all the HAP's in an emission stream, because of: (1) the variability of feedstocks contributing to a varying pollutant content; (2) the many different analytical methods required; or (3) the absence of approved methods thus requiring the development of individual methods of identification.

Two commenters (A-90-19: IV-K-28; IV-K-50) questioned whether complete speciation was technically feasible. One of the commenters (A-90-19: IV-K-28) noted that speciation from reactor vents and for HAP's below detection limits may be impossible. Two commenters (A-90-19: IV-K-21; IV-K-66) maintained that although high concentrations may be measurable, it would be difficult to measure small concentrations. The commenters (A-90-19: IV-K-21; IV-K-66) noted that reactions in sample containers, interference in the gas chromatographic method, and problems with analytical sampling methods could prevent accurate measurement of HAP concentrations.

One commenter (A-90-19: IV-K-54) advocated minimizing the number of HAP's that a source must test for. The commenter (A-90-19: IV-K-54) suggested, for example, if a tank only has nonhalogenated VOC, a source should not have to test for halogenated VOC, semi-volatiles, or particulate matter. The commenter (A-90-19: IV-K-54) also proposed that a source should not have to speciate HAP's if the control technology utilized was known to control other HAP's of the same type.

Response: In the supplemental notice, the EPA recognized that to satisfy an implementing agency that an averaging plan would not increase risk, a source might have to identify and quantify all the HAP included in the average. Hence, comment was requested on whether identifying all the HAP's in the emissions streams would pose difficulties for sources, and, if so, what those difficulties would be.

It is acknowledged that individual HAP's emitted in mixtures must already be identified in some States' permitting programs and that individual HAP's must be identified to a certain extent to make the risk equivalency demonstration. However, the EPA also recognizes that it may not be technically feasible to identify HAP's at levels below some minimal concentration and that establishing some level for identification may be in order or allowing engineering judgement, in some cases. The concerns over HAP identification have been noted and will be considered in developing the guidance.

2.9.7 Broader Scope for Averaging

Comment: One commenter (A-90-19: IV-D-83 and IV-F-1.3 and IV-F-5) stressed that if a broader emissions averaging program that allows averaging across different source categories is adopted, it should remain a nonweighted scheme or have safeguards that are easy to implement.

Two commenters (A-90-19: IV-D-58; IV-D-73) suggested that if a broad averaging program is adopted, it may need to take toxicity of different HAP's into account.

Two commenters (A-90-19: IV-D-58; IV-D-83 and IV-F-1.3 and IV-F-5) suggested that risk-neutral averaging among sources and HAP's outside the scope of the HON could be based on the existing list of 47 "high risk" pollutants and associated weighting factors included in the Early Reductions rule under section 112(i)(5) of the Act.

One commenter (A-90-19: IV-D-83) stated that under a broader averaging scheme, the EPA's proposal to limit trading to organic HAP's covered under the HON could be workable; but added that the EPA should specify that for future MACT standards covering organic and inorganic HAP's, one-for-one averaging among inorganic HAP's would also be allowed. The commenter (A-90-19: IV-D-83) added that trading between organic and inorganic HAP's could also be addressed by the high risk pollutant list and weighting factors discussed previously.

Response: As discussed in section 2.4 of this BID volume, broader emissions averaging, i.e., averaging between sources and source categories, is not allowed in the final rule. As such, these comments are no longer applicable. It is reemphasized that although the HON can be regarded as precedent-setting, it should not be assumed that any elements of this rulemaking will be duplicated in other standards. Nor should it be assumed that any aspect of the HON imposes any restrictions on the design and development of future rules.

2.10 BANKING

2.10.1 General Issues

Comment: Six commenters (A-90-19: IV-D-51; IV-D-85 and IV-F-7.39 and IV-F-12 and IV-G-6; IV-D-99; IV-F-1.5; IV-F-7.1; IV-F-7.33) opposed allowing banking of emission credits.

One commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) stated that emissions credit banking violates the maximum achievable emission reductions standard by reducing future performance based on past differences between actual and allowable emissions, and that sources will plan less carefully when they have emissions credits in the bank. The commenter (A-90-19: IV-D-85) stated that banked credits will also reflect actions taken to comply with State rules, many of which are stricter than the proposed HON standard. The commenter (A-90-19: IV-D-85) stated that plants with credits in the bank will rely on Implementation Plans, which appear adequate on the surface but which the plant operator knows will likely prove inadequate. The commenter (A-90-19: IV-D-85) added that if the State suspects the standards are not being achieved, the company will come forward with windfall banked credits.

One commenter (A-90-19: IV-D-51) contended that banking of credits is unacceptable until the EPA develops guidance on acceptable ambient exposure levels of these chemicals. Another commenter (A-90-19: IV-D-99) opposed banking because of administrative difficulties, negative effects on future emission reductions, and a possible increase in public exposure to toxic emissions.

Several commenters (A-90-19: IV-D-32; IV-D-33; IV-D-48; IV-D-50; IV-D-58; IV-D-62; IV-D-69; IV-D-72; IV-D-73; IV-D-74; IV-D-78; IV-D-79; IV-D-82; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-86; IV-D-92; IV-D-106; IV-D-108; IV-F-1.6 and IV-F-6; IV-G-1) supported emissions banking.

Two commenters (A-90-19: IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-92) considered banking an essential element of a successful averaging program. One commenter (A-90-19: IV-F-1.6 and IV-F-6) stated that banking offers facilities needed flexibility in conducting operations that may vary with annual changes in business and productivity and further claimed that banking would encourage early implementation of emission controls. Another commenter (A-90-19: IV-D-58) stated that banking rewards facilities that reduce emissions early in averaging program.

Three commenters (A-90-19: IV-D-32; IV-D-78; IV-D-92) asserted that banking will increase the likelihood of success of the averaging program by providing a safety valve for unexpected events that may throw a balance off. Another commenter (A-90-19: IV-D-48) suggested that emissions will tend to be less than under RCT as sources adopt more stringent controls to accumulate banked credits. One commenter (A-90-19: IV-D-62) supported banking because of the flexibility it provides in compliance and for the environmental benefit.

One commenter (A-90-19: IV-D-58) suggested that allowable emission limits in operating permits will limit emissions of any particular source, therefore the use of banked emission credits will not jeopardize environmental protection in any emissions averaging program.

Response: Banking of extra credits generated in one compliance period for use in a future compliance period is not allowed in the final rule. Several commenters mentioned the likelihood of significant administrative burden resulting from tracking the generation and use of banked credits, which was the primary reason for not including the proposed banking provisions. With the goal in mind of keeping the administration of the rule as simple as possible, credit banking represents a complication that would affect the source and implementing agency alike. Another reason for deleting banking from the final rule was the possibility that communities near sources could experience peak HAP exposures if banked credits were allowed to offset unexpected increases in emission debits. Any additional flexibility offered by banking is offset by the increased administrative burden and potential for peak exposures such that little overall advantage can be gained from allowing credit banking.

The EPA disputes contentions that banking of credits is essential to emissions averaging. Simply allowing emissions averaging as an alternative to comply with the rule provides a great deal of flexibility in and of itself. Several commenters stated that the annual compliance period is sufficient to accommodate the normal fluctuations in operating rates and unexpected events (see section 2.7.1 of this BID volume for summaries of these comments). So, further insurance from banked credits is not necessary.

Several commenters argued that the prudent source will include a margin of safety in their credit/debit balance in order to ensure compliance (see section 2.6 of this BID volume for summaries of these comments). The EPA agrees that to do so is prudent and anticipates that sources will present conservative emissions averaging plans for approval. Again, with the prospect of such safety measures promised by industry sources, banking of credits was deemed an unnecessary provision providing little or no additional advantage overall.

It is possible that allowable emission limits established in operating permits could be used in some cases to prevent peak HAP emissions from occurring due to the use of banked emission credits. However, not all sources will have allowable emission limits established in their operating permits, nor does this rule require that specific numerical emission limits be applied. Moreover, some facilities located in areas in attainment of NAAQS may not be required by Federal or State rules to limit emissions either. Therefore, unless a permitting authority requires allowable emission limits in operating permits, the commenter's claim that limits in operating permits can afford environmental protection does not apply. In any case, if a source does accept emission limits, their ability to bank would be reduced so much as to make banking virtually impossible to use.

2.10.2 Period of Availability

Comment: One commenter (A-90-19: IV-D-50) suggested that there be no time limit on the use of banked credits.

Several commenters (A-90-19: IV-D-32; IV-D-58; IV-D-62; IV-D-69; IV-D-72; IV-D-73; IV-D-78; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-89; IV-D-106; IV-G-1) proposed that banked credits be available for five years or more. Five commenters (A-90-19: IV-D-58; IV-D-62; IV-D-83 and IV-F-1.3 and IV-F-5; IV-D-89; IV-G-1) claimed that this will encourage early reductions of HAP's. Three commenters (A-90-19: IV-D-58; IV-D-62; IV-G-1) explained that the longer period encourages sources to make extra reductions earlier because they know the banked credits will be available for a longer period; on the other hand, if banked credits expire too quickly, there will be more incentive to postpone reductions for as long as possible. One commenter (A-90-19: IV-D-62) contended that this undermines the intent of the MACT controls which should encourage emissions reductions as early as possible. Two commenters (A-90-19: IV-D-32; IV-D-73) suggested that because excess credits would be continually generated, and in most years banked credits would not be needed and would lapse, banking would result in additional emissions reductions compared to an emissions averaging program without it. Two commenters (A-90-19: IV-D-72; IV-D-106) stated that the banking provisions encourage sources that use emissions averaging to generate more credits than necessary to balance debits annually. One commenter (A-90-19: IV-D-89) worried that a time range shorter than 5 years could result in significant emission variations as industry rushed to use banked credits. Another commenter (A-90-19: IV-D-78) argued that the lower the allowable period for banking, the more difficult it will be for sources to justify emission reduction projects beyond that required for regulatory compliance.

One commenter (A-90-19: IV-D-58) disagreed with concerns that a five year banking period could interfere with enforcement and recordkeeping. The commenter (A-90-19: IV-D-58) argued that because credits can only be generated from the time of MACT promulgation onward, historical data should not be a problem. The commenter (A-90-19: IV-D-58) further suggested that quarterly reporting will provide plenty of notice of the need and use of banked credits in advance of the annual compliance period, enabling verification in a timely manner and also adequate time for enforcement actions if needed.

Three commenters (A-90-19: IV-D-58; IV-D-74; IV-D-108) suggested that the term of availability of banked credits should be similar to banking provisions in other regulations, such as PSD netting and future section 112(g) offset provisions.

One commenter (A-90-19: IV-D-82) recommended allowing reductions to be banked if they were achieved after enactment of the 1990 amendments. One commenter (A-90-19: IV-D-69) added that credit for previous reduction projects should be available for at least five years after promulgation of the rule.

Response: The proposal to allow banking of surplus credits was not included in the final rule for the reasons discussed in the previous response. Hence, comments regarding the period over which banked credits should be available are no longer relevant.

2.10.3 Use for Quarterly Compliance

Comment: Four commenters (A-90-19: IV-D-32; IV-D-79; IV-D-86; IV-D-92) urged the EPA to permit the use of banked credits on a quarterly basis to reduce the likelihood of last-minute compliance problems. One commenter (A-90-19: IV-D-32) suggested that concerns about potential significant quarterly spikes in excess debits could be addressed by allowing no more than 10 percent of credits used in a quarterly average to be banked credits.

One commenter (A-90-19: IV-D-32) stated that although the "fixed-cap" quarterly average approach is preferred, it is less flexible, and if the alternate "fixed cap" approach is used, allowing the use of banked credits on a quarterly basis would be important to restore flexibility.

In contrast, one commenter (A-90-19: IV-D-58) opposed allowing the use of banked credits on a quarterly basis. The commenter (A-90-19: IV-D-58) was concerned that if the alternative quarterly emissions limit based on allowable emissions is implemented, a compliance inconsistency could result if banked emission credits are allowed for quarterly compliance.

Response: As stated in the first response in this section, surplus credits cannot be banked for future use. Because the source has a full year over which to average emissions, the prudent source will create more credits than are needed early in the compliance period, which can be used to balance unexpected debits later in the same compliance period.

In general, the best way to reduce the likelihood of last-minute compliance problems is to select emission points whose operating histories can ensure reliable averages at any given time. The EPA also agrees that it is prudent to incorporate a safety margin of extra credits into averages. Conservative planning should ensure that quarterly exceedances beyond the 30 percent allowable quarterly debit exceedance will be avoided and that a source's compliance with the rule will not likely be in danger.

2.10.4 Miscellaneous Issues

Comment: One commenter (A-90-19: IV-G-1) stated that, beyond the methods stated in the proposal preamble, enforcement concerns regarding banking could be addressed by: (a) requiring appropriately limited waiver of the statute of limitations as a condition of averaging approval; or (b) construing the "violation" to occur when a defective credit is used.

One commenter (A-90-19: IV-D-87) stated that banked credits should be discounted 20 percent per year.

Two commenters (A-90-19: IV-D-90; IV-D-100) were concerned that EPA did not evaluate the risks associated with increasing emissions of more toxic HAP's by banking credits.

Two commenters (A-90-19: IV-D-74; IV-D-108) suggested that banked credits should be defined to be created on a specific date, such as the last date of the quarter in which they are banked.

Response: Although the suggestions advanced by one commenter may satisfy the concern over the statute of limitations, they do not address the other problems that banking poses for adequate enforcement of the rule. The fact remains that allowing credit banking would increase the complexity of the emissions averaging program and allow for peak emissions. Hence, the EPA concluded that deleting the provisions for banking produces the most workable structure for the final rule, and because banking of credits for future use is not allowed in the final rule, the remaining comments are no longer applicable.

2.11 GENERAL POLICY AND MISCELLANEOUS ISSUES

2.11.1 Precedent for Future Rule Makings

Comment: One commenter (A-90-19: IV-D-58) supported the emissions averaging program and stated it sets an important precedent for subsequent MACT proposals on other source categories.

Five commenters (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12; IV-D-90; IV-D-99; IV-D-100; IV-F-7.6) were concerned that including the emissions averaging provisions could set a dangerous precedent for future air toxics rules. One commenter (A-90-19: IV-D-85 and IV-F-7.39 and IV-F-12) warned that including emissions averaging in the HON will tarnish the reputation of economic incentive programs, which have the potential to contribute to environmental progress if designed properly and applied appropriately to other kinds of pollution.

Response: As stated in the proposal preamble, this rule describes the first application of emissions averaging for compliance with standards developed under section 112(d) of the Act. Many interested groups and parties subject to NESHAP have interpreted, and will continue to interpret this rule as an indication of the types of requirements that may be incorporated into future standards. However, although the EPA does consider this rule to be precedent-setting, decisions for future NESHAP must be made on a specific source-category basis. If the use of emissions averaging is allowed for other source categories, public comment will be solicited again as part of that rulemaking effort. It should not be assumed that emissions averaging will be allowed in other standards. Also, where emissions averaging is included in future rules, it may not be comprised of the same specific requirements as in this rule.

Comment: One commenter (A-90-19: IV-D-103) discussed basic conditions for a successful market-based trading system for regulating environmental releases. The commenter (A-90-19: IV-D-103) concluded that none of the conditions for a successful market-based trading system are met in the proposed averaging provisions and outlined why.

Response: The conditions outlined by the commenter for a successful market-based trading system do not apply to the emissions averaging program in this rule because emissions averaging is not a market-based trading system in the sense described by this commenter. In emissions averaging, trades occur strictly within the source; there is no opportunity to "market" surplus emission reductions outside of the source. The emissions averaging program in the rule does not meet these conditions because the conditions do not pertain to this type of program at all.

2.11.2 Simplifying the Language of the Rule

Comment: Several commenters (A-90-19: IV-D-59; IV-D-67; IV-D-68; IV-D-71; IV-D-83; IV-D-90; IV-D-100; IV-F-1.1 and IV-F-3; IV-F-7.21; IV-F-7.36; IV-F-7.41) were concerned about the complexity of the final emissions averaging provisions. Two commenters (A-90-19: IV-D-72; IV-D-106) urged the EPA to structure the program to maintain maximum flexibility for sources.

Response: Allowing the use of emissions averaging increases the flexibility of sources to comply with the rule overall. However, any additional flexibility in emissions averaging must be balanced by the need to maintain the enforceability of the program without unduly burdening the authorizing agency.

As discussed in section 2.8.2 of this BID volume, the nature of emissions averaging requires some provisions for monitoring, recordkeeping, and reporting that are not needed under point-by-point compliance. Also, the calculation of debits and credits has been specified in great detail to ensure that emissions are estimated consistently. The provisions are required to maintain enforceability.

The emissions averaging provisions have also been modified to decrease complexity. Banking has been removed, and credit for prior controls and averaging at new sources are not allowed. With these simplifying changes, concerns about the complexity of the proposed rule and the emissions averaging program should be minimized.

Comment: Four commenters (A-90-19: IV-D-32; IV-D-62; IV-D-64; IV-D-113) suggested that equations for emissions averaging should not be written into the regulation. Two commenters (A-90-19: IV-D-32; IV-D-62) were concerned that emissions equations can become outdated quickly and that other documents or publications containing the equations could be revised more easily than the regulation.

Two commenters (A-90-19: IV-D-32; IV-D-73) recommended restructuring the presentation of the averaging provisions to make key subsections more prominent and identifiable by relocating detailed calculation procedures and tables referencing AP-42 to an appendix to the rule. The commenter (A-90-19: IV-D-73) further recommended incorporating recent changes to AP-42 in the suggested appendix to keep calculation procedures up-to-date.

One commenter (A-90-19: IV-D-33) recommended that tables 20 through 31 in proposed §63.150 should not be promulgated as part of the HON; rather, they should be referenced as coming from AP-42 because the information in the tables is changed periodically as the EPA updates AP-42 factors. The commenter (A-90-19: IV-D-33) further recommended that a clarifying statement should be added to §§63.150(f)(3) and (g)(3) of the proposed rule that the AP-42 tables that are to be used are those in existence at the time the Implementation Plan or operating permit application is submitted. The commenter (A-90-19: IV-D-33) suggested that doing so would provide certainty that once the factors were used, those factors would be the ones that would apply throughout the term of an emissions average. However, the commenter (A-90-19: IV-D-33) provided that as new Implementation Plans or operating permit applications for additional emissions averaging groups are submitted in the future, tables and relevant factors present at that time should be used.

Response: All tables in subpart G of the final rule have been moved to the end of the subpart. The tables and equations cannot be removed as suggested by commenters because cross-referencing of other EPA documents or publications is not allowed. Instead, data and equations obtained from other Federal documents must be duplicated as part of the regulation.

It is not to the benefit of the source or the implementing agency to revise a rule every time estimation equations and factors change. If a rule were changed, a source that was in compliance based on older estimation methods could be judged out of compliance later. The Act provides that NESHAP shall be reviewed and revised as necessary no less often than every eight years. Significant changes that may have accumulated can be incorporated at that time.

In any case, the EPA is confident of the estimation methodologies for the emission points subject to this rule. The equations and data are not expected to change substantially anytime in the future.

Comment: One commenter (A-90-19: IV-D-113) found that when attempting to verify the equations in the emissions averaging provisions, it was difficult and sometimes impossible to cancel units. The commenter (A-90-19: IV-D-113) cited an equation for process vents as an example of this problem where a constant used undocumented units.

Response: The units of all constants have been specified, and the units of measurement for the parameters in the equations have been verified as appropriate in the final rule.

2.11.3 The Intent of Section 63.112

Comment: Four commenters (A-90-19: IV-D-32; IV-D-64; IV-D-73; IV-D-81) recommended clarifications of §63.112 of the proposed rule.

Three commenters (A-90-19: IV-D-32; IV-D-73; IV-D-81) recommended including in §63.112(c)(2) the statement that emission points not included in an emissions average may comply in accordance with §63.112(c)(1).

One commenter (A-90-19: IV-D-64) requested that the EPA clarify that the intent of §63.112(c)(2)(ii) is to provide sources the choice of emissions averaging or complying with

§§63.113 through 63.147 of the proposed rule. The commenter (A-90-19: IV-D-64) further suggested that the calculation of the allowable emission rate specified in proposed §63.112(a) and required by §63.112(c)(2) is unnecessary, because if the source elects to use emission averaging, all it should be required to do is specified in §63.150.

Response: Several commenters misunderstood the provisions in §63.112 of the rule, so the provisions have been revised to clarify their intent. As stated in the proposal preamble, the rule establishes a control requirement for each kind of regulated emission point in a source. However, to facilitate the use of emissions averaging, it is necessary to recognize that compliance by the source as a whole is accomplished by achieving an allowable emissions level. This allowable emissions level is the sum of emissions from all points (excluding equipment leaks) in the source if the required controls are applied, and the level is represented by the equation of §63.112(a) of the final rule.

The equation of §63.112(a) is simply a mathematical representation of the allowed emissions when a source complies with the rule. The provisions now state that owners or operators are not required to calculate the allowable emissions level for compliance purposes. It has also been made clear that the allowable emissions level is established for a given collection of emission points and is never fixed. The level represented by the equation of §63.112(a) will be different from source to source, and the level for a particular source can change if the number or kinds of emission points constituting the source changes or as production changes.

Section 63.112(c) of the final rule introduces the two compliance options available only to existing sources: point-by-point compliance or emissions averaging. The provisions now state specifically that emissions averaging alone cannot be used to comply with the rule. Emissions averaging is to be used for groups of points, not all of the points in a source, and compliance for the points not involved in emissions averages will still be determined on a point-by-point basis.

Thus, using the emissions averaging compliance option for some points does not require that the emissions for all points in the source must be quantified. Emissions quantification is required only for the points included in averages in order to calculate emission debits and credits, and the quantification of debits and credits is based on the equations in §63.150. Under point-by-point compliance, the source needs only to install RCT where it is required. But regardless of the compliance option that the source chooses for each of its emission points, the source must still achieve the overall emission level.

This last point must be emphasized. While the equation of §63.112(a) of the final rule was included to enable the use of emissions averaging, it represents the total emissions allowed regardless of how a source complies with the rule. As a representation of overall emissions, the equation need not indicate how aspects of emissions averaging are to be incorporated just as it does not indicate how point-by-point compliance is to be incorporated. Instead, appropriate references are made to the specific compliance provisions for each kind of emission point and to the provisions for emissions averaging, which are detailed in §63.150.

Comment: One commenter (A-90-19: IV-D-74) considered the description of emissions averaging in the proposal preamble and the actual language in the rule to be inconsistent. The commenter (A-90-19: IV-D-74) stated that in the proposal preamble, emissions averaging is described as an "allowable emission level set for a given mix of emission points," in other words, a fixed-mass cap or a fixed percent reduction of overall emissions (57 FR 62613-14). The commenter (A-90-19: IV-D-74) complained that the process-specific emphasis in the language of the proposed rule would be very difficult to implement in pharmaceutical manufacturing, which is typically accomplished by batch processes. The commenter (A-90-19: IV-D-74) was concerned that the level of recordkeeping and analysis required in emissions averaging for a batch processor would be far more burdensome than for a continuous process operation if emissions averaging is expressed as debits and credits against a process-specific allowable emission rate.

Response: The form of the standard is described as the allowable emissions level set for a given mix of emission points. The allowable emissions level represented by the equation of §63.112(a) is not a "fixed cap," i.e., a limit on total emissions. The rule does not in any way bar the source from changing the number or kinds of emission points or restrict their operation. The rule only requires that a certain percent reduction be achieved at Group 1 points. Thus, the rule does not limit how much can be emitted from a point at any time; it only requires for Group 1 points that the emissions be the residual from achieving the reference control efficiency designated for that kind of point.

For example, a Group 1 process vent capable of emitting 10 tons of uncontrolled HAP emissions must apply RCT with a reference efficiency of 98 percent and therefore, cannot emit more than 0.2 tons of emissions. The rule does not bar the source from increasing production at any time at the process unit containing the Group 1 vent. If production is increased such that the uncontrolled HAP emissions from the vent are doubled to 20 tons, the allowable emissions are also doubled to 0.4 tons (2 percent of 20 tons). The allowable emissions from the source are not fixed.

If this process vent were to be used as a debit generator in an emissions average, production increases are still allowed, and the emissions in this example are still allowed to double from 0.2 tons to 0.4 tons. However, when production is increased, the debit also doubles from 9.8 (10 minus 0.2) to 19.6 (20 minus 0.4) tons. The source is required to maintain the average's balance after the production increase. Hence, when debits increase, the source must find an equal number of new credits. Thus, it can be seen that the rule does require a fixed percent reduction of emissions from applicable points, but the rule does not impose a fixed-mass cap.

The pharmaceutical manufacturing to which the commenter refers is not subject to this rule, and the EPA cannot predict at this time what future NESHAP may require for the pharmaceutical industry. Process vents in SOCMI batch operations are also not subject to this rule. Including other batch emission points in averages and complying with the monitoring, recordkeeping and reporting requirements is no different than for continuous processes. However, if the source considers emissions averaging burdensome for their specific situation, point-by-point compliance may be the preferred compliance option.

Comment: One commenter (A-90-19: IV-D-33) suggested that the equation in proposed §63.112(a) improperly defines terms $\sum EPV_1$, $\sum ES_1$, and $\sum ETR_1$, and that they should not be preceded by numbers (0.02, 0.05, and 0.02 respectively).

Response: The allowable emissions from Group 1 process vents, storage vessels and transfer racks are correctly written in the equation of §63.112(a) of the final rule. By themselves, $EEPV_1$, EES_1, and $EETR_1$ represent the sum of uncontrolled emissions from the respective Group 1 points. The numbers preceding these terms in the equation denote the percent reductions required for each kind of Group 1 point, and it is correct mathematically to place the numbers outside the summation symbol. Thus, the terms as written in the equation are properly defined as the sum of residual emissions from all such points in a source.

2.11.4 Emissions Estimation

Comment: One commenter (A-90-19: IV-D-85) predicted that even if "representative operating conditions" were precise and never varied, enforcement of the emissions averaging program would still be inadequate because the procedures for estimating credits and debits invite gaming. The commenter (A-90-19: IV-D-85) warned that a wide menu of estimation techniques are allowed in many situations, and operators are not required to use the most accurate techniques. The commenter (A-90-19: IV-D-85) argued that the same technique and assumptions should be used on all emission points to the extent that is technically practicable, and conservative assumptions (i.e., low for credits, high for debits) should be required in making estimates. Otherwise, the commenter (A-90-19: IV-D-85) predicted that operators could substitute lower estimates of emissions on high debit-generating points through substitution of some other technique (e.g., historical flow rates from units that have produced less in the past) and boost paper credit generation through use of another technique (e.g., flow rates based on design capacity for wastewater streams) on another point.

Response: Similar charges were made in the second comment in section 2.3.4 of this BID volume regarding allowing averages between different kinds of emission points. The response to the comment in section 2.3.4 pertains to all of the claims made here as well.

Comment: Two commenters (A-90-19: IV-D-34; IV-D-78) noted that the overall source emission limit equation in §63.112 and the debit and credit equations in §63.150 assume that Group 1 emission points are all controlled to the rated RCT efficiencies (e.g., 95 percent or 98 percent). The commenters (A-90-19: IV-D-34; IV-D-78) suggested that for the facility that elects to use the outlet concentration option (e.g., 20 ppmv) or other EPA-approved control technologies, the EPA should state that these and other equations based on the assumption of 95 percent or 98 percent control should be modified to include the 20 ppm component where appropriate because they may not need to achieve the full 95 percent or 98 percent removals in these cases.

Response: The commenters noted correctly that the equations of §§63.112 and 63.150 of the rule do not reflect the option to control to a exiting HAP concentration of 20 parts per million by volume.

It is not necessary to revise the general equation of §63.112(a) of the final rule, which is not specifically used for calculations. The option of controlling to 20 parts per million by volume is not an issue for emissions averaging either. When a Group 1 point is left uncontrolled as a debit generator, it simplifies matters to use the RCT's nominal efficiency to calculate debits in all cases. When a Group 2 point is controlled to generate emission credits, the percent reduction must be determined to calculate the credits, regardless of the exit concentration that results from control.

Comment: One commenter (A-90-19: IV-D-32) suggested that the equation in §63.150(f)(2)(ii) of the proposed rule for calculating uncontrolled emission rates from process vents is invalid as written because it includes a temperature adjustment that is not needed since the vent stream flow rate and HAP concentrations are already expressed at standard conditions. The commenter (A-90-19: IV-D-32) recommended rewriting the equation to remove the temperature correction.

Response: The commenter's observation is correct, and the temperature parameter has been removed from the equation of §63.150(g)(2)(ii) of the final rule.

Comment: One commenter (A-90-19: IV-D-74) suggested that ambient annual temperature is improperly used in §63.150(f)(3)(i) of the proposed rule for calculating storage tank emissions because no provision is made for indoor storage tanks, where color is not particularly relevant and the ambient temperature depends on the air conditioning. The commenter (A-90-19: IV-D-74) further recommended that the calculation allow the source the option to take advantage of cold outdoor temperatures in winter by using the average monthly ambient temperature, corrected for tank color. The commenter (A-90-19: IV-D-74) reasoned that with this option, the advantage of overcontrolling a tank farm in the summer is greater than it is in the winter, which could be a relevant matter for some plants' production schedules.

Response: No specific provision was made for indoor storage vessels because it is unlikely that SOCMI vessels with capacities greater than 20,000 gallons (the vessels likely to be classified as Group 1) are located indoors. The commenter is correct that if a storage vessel is located indoors, the source probably will not need to correct the average storage temperature (T_S) for the tank paint color. The final rule now provides that in cases where a vessel is located indoors, the paint factor (F_p) can be taken to be 1.

The issue for indoor storage vessels is not so much whether the tank paint color is relevant in calculating emissions. The main issue is whether a storage vessel will still experience a diurnal temperature change even though it is located indoors. It is possible that the air temperature may not be regulated where the vessel is located, and the vessel may still experience a diurnal temperature change. In this case, breathing losses will still occur and must be estimated for emissions averaging. However, if by being indoors, T_S can be held constant, breathing losses would not have to be calculated.

It would not be to the advantage of most sources to use average monthly ambient temperatures for calculating credits from storage vessels. The commenter is correct that storage vessels will have greater emissions in the summer and hence can generate more credits in the summer. But, the opposite is true during the winter when the vessels would generate fewer credits. This would have no effect on the annual compliance, of course. However, the difference could cause the source to be out of compliance with the quarterly emissions limit. In this case, the use of the annual average temperature can protect the source from potential quarterly compliance violations.

In effect, the use of the annual average temperature averages the emissions from storage vessels over the compliance period. There should be no difference between total annual emissions calculated using the annual average and the monthly average temperature. The use of the annual average ambient temperature in calculating debits and credits for storage vessels is more appropriate because it simplifies emissions averaging calculations. It frees the source and the authorizing agency from contending with variations in debits and credits that would result from seasonal temperature fluctuations.

Comment: One commenter (A-90-19: IV-D-62) claimed that the emissions averaging equations for fixed-roof storage vessels are outdated since the EPA has just issued a new section on "Storage of Organic Liquids" in their AP-42 document with new equations different from those in the proposed rule.

Response: A provision was added to the final rule allowing the use of updated AP-42 equations for estimating evaporation (breathing) losses from fixed-roof storage vessels. Breathing losses must be estimated in emissions averaging to calculate the total uncontrolled emissions from a fixed-roof storage vessel. The updated procedures and equations have been incorporated by reference from American Petroleum Institute Publication 2518, which contains them in the identical form to that of AP-42. The provision also stipulates that if the updated equations are to be used, they must be used for all of the storage vessels to be included in an emissions average as debit or credit generators. The new equations cannot be used for some vessels, and the equations in the rule used for other vessels at the same time.

2.11.5 Miscellaneous Issues

Comment: One commenter (A-90-19: IV-D-85 and IV-G-6) considered exemptions from control based on cost effectiveness incompatible with emissions averaging, which does not require control of any particular emission point. Hence, the commenter (A-90-19: IV-D-85) concluded that including emissions averaging in the rule eliminates the justification for cost-effectiveness cutpoints. The commenter (A-90-19: IV-D-85) suggested that if the supposed flexibility of emissions averaging produces significant benefits through technological innovation and pollution prevention, then these improvements should provide sufficient extra reductions to offset the small quantities of emissions allowed through reasonable exemptions. The commenter (A-90-19: IV-D-85) declared that to the extent emissions averaging becomes part of the final rule, any cost-effectiveness exemptions are arbitrary and capricious.

Moreover, the commenter (A-90-19: IV-D-85) considered the imposition of cutpoints one of their worst fears about emissions trading. The commenter (A-90-19: IV-D-85) suggested that to the extent credits are allowed for exceeding standards, regulated companies and ideologically committed government agencies have an incentive to weaken standards to fuel trading. The commenter (A-90-19: IV-D-85 and IV-G-6) declared that relaxing stringency through exemptions in order to encourage trading is unacceptable.

Response: The EPA considers it consistent with the Act to use applicability criteria to distinguish Group 1 and 2 points that are subject to different levels of control. Discussion of the applicability criteria for group status is included in section 5.2 of BID volume 2D. Cost effectiveness was used along with other factors to determine the control options above the MACT floor for the different kinds of Group 1 points. The EPA considers basing applicability on cost effectiveness, among other criteria, to be consistent with the Act and compatible with emissions averaging as well. The use of cost effectiveness to determine control options above the floor is similarly discussed in section 5.2 of BID volume 2D.

On the average for the industry, Group 1 points can be controlled more cost-effectively than Group 2 points. However, some sources may have Group 1 points that are much more expensive to control than the national average. Emissions averaging is provided for these select cases where it is more cost-effective to control some Group 2 points to achieve the required emission reductions.

Emissions averaging provides sources the flexibility to comply with the rule in a less costly manner on a site-specific basis. But, the possibility that some Group 2 points may be less costly to control than on average does not mean that more cost-effective control of all Group 2 points is possible. The use of emissions averaging will not eliminate the difference on average in the cost effectiveness of controlling Group 1 and 2 points. The reasons for designating Group 2 points still exist for the majority of points that are not involved in emissions averaging.

Comment: One commenter (A-90-19: IV-D-86) stated that additional flexibility is required for an emissions averaging program to be viable for batch operators because a wide range of different products is made in the same batch equipment, which can result in changing, intermittent emissions. The commenter (A-90-19: IV-D-86) suggested that a significant amount of emissions from batch operations results from the equipment cleaning that is required at changeovers from manufacturing one product to the next. The commenter (A-90-19: IV-D-86) stated that in many cases, however, batch operators have the flexibility to campaign runs of a specific product; for example, instead of manufacturing a product during the first week of each month of the year, the operator may be able to manufacture over a 12-week period and inventory the product. The commenter (A-90-19: IV-D-86) explained that campaigning product runs minimizes changeovers and hence clean-outs and their attendant emissions; emissions during production do not change whether the product is made intermittently or all at once, while overall emissions are reduced. The commenter (A-90-19: IV-D-86) complained that with quarterly limits or a compliance period shorter than a year, campaigning product runs could result in a violation because the emissions are concentrated in one quarter even though campaigning lowers overall emissions. The commenter (A-90-19: IV-D-86) submitted that the flexibility needed by batch operators can be accomplished through the provisions recommended by the CMA.

Response: The EPA appreciates the commenter's concerns for flexibility in emissions averaging, but a number of factors argue against redesigning the emissions averaging program to further accommodate batch operations. In the first place, there are few batch processes that are subject to the rule. Most batch operations are associated with source categories other than SOCMI. It also does not appear that a batch operation can contribute much to an emissions average. A large portion of emissions from batch operations, emissions from batch process vents, are not subject to the rule and hence, are not eligible for emissions averaging.

The point is noted that campaigning batch product runs may reduce overall emissions by reducing cleanings at changeouts, and that emissions averaging may discourage production campaigning. It is not desirable that emissions averaging should ever encourage greater emissions than would otherwise occur. The EPA encourages the commenter to submit data illustrating the significance of emissions from cleanings for use in future standards affecting batch operators. Cleaning batch process equipment is also considered a maintenance turnaround, so any wastewater that may be generated by the cleaning is not subject to subpart G. Rather, such wastewaters are subject to the provisions of subpart F, and their emissions are not suitable for averaging.

The batch operator must determine which compliance alternative is best for their site-specific situation, point-by-point compliance or emissions averaging as provided in the final rule. If the batch operator can associate the operation of their credit-generating points with their debit generators, then regardless of how emissions may be concentrated in a particular period, the average will always stay balanced. Otherwise, product campaigns in batch operations may not be compatible with emissions averaging.

HAZARDOUS AIR POLLUTANT EMISSIONS FROM PROCESS UNITS IN THE SYNTHETIC ORGANIC CHEMICAL MANUFACTURING INDUSTRY--BACKGROUND INFORMATION FOR PROMULGATED STANDARDS

Volume 2A: Comments on Process Vents Storage Vessels, Transfer Racks and Equipment Leaks

Emission Standards Division

U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

January 1994

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ENVIRONMENTAL PROTECTION AGENCY

Background Information and Final Environmental Impact Statement for Hazardous Air Pollutant Emissions from Process Units in the Synthetic Organic Chemical Manufacturing Industry
Volume 2A: Comments on Process Vents, Storage Vessels, Transfer Racks, and Equipment Leaks

Prepared by:

_________________________________ ______________________
(Date)

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1. The standards regulate emissions of organic hazardous air pollutants (HAP's) emitted from chemical manufacturing process units in the Synthetic Organic Chemical Manufacturing Industry (SOCMI) and from other processes subject to the negotiated regulation for equipment leaks. Only those chemical manufacturing process units that are part of major sources under Section 112(d) of the Clean Air Act (Act) will be regulated. The standards will reduce emissions of 112 of the organic chemicals identified in the Act list of 189 HAP's.

2. Copies of this document have been sent to the following Federal Departments: Labor, Health and Human Services, Defense, Transportation, Agriculture, Commerce, Interior, and Energy; the National Science Foundation; and the Council on Environmental Quality. Copies have also been sent to members of the State and Territorial Air Pollution Program Administrators; the Association of Local Air Pollution Control Officials; EPA Regional Administrators; and other interested parties.

3. For additional information contact:

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4. Paper copies of this document may be obtained from:

National Technical Information Service (NTIS)
5285 Port Royal Road
Springfield, VA 22161
Telephone: (703) 487-4650

5. Electronic copies of this document may be obtained from the EPA Technology Transfer Network (TTN). The TTN is an electronic bulletin board system which is free, except for the normal long distance charges. To access the HON BID:

- Set software to data bits: 8, N; stop bits: 1
- Use access number (919) 541-5742 for 1200, 2400, or 9600 bps modems [access problems should be directed to the system operator at (919) 541-5384].
- Specify TTN Bulletin Board: Clean Air Act Amendments
- Select menu item: Recently Signed Rules

OVERVIEW

Emission standards under section 112(d) of the Clean Air Act (Act) apply to new and existing sources in each listed category of hazardous air pollutant (HAP) emission sources. This background information document (BID) provides summaries and responses for public comments received regarding the Hazardous Organic National Emission Standard for Hazardous Air Pollutants (NESHAP), which will affect the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The BID comprises six volumes including:

- Volume 2A: Comments on Process Vents, Storage Vessels, Transfer Racks, and Equipment Leaks (EPA-453/R-94-003a);

- Volume 2B: Comments on Wastewater (EPA-453/R-94-003b);

- Volume 2C: Comments on Emissions Averaging (EPA-453/R-94-003c);

- Volume 2D: Comments on Applicability, National Impacts, and Overlap with Other Rules (EPA-453/R-94-003d);

- Volume 2E: Comments on Recordkeeping, Reporting, Compliance, and Test Methods (EPA-453/R-94-003e); and

- Volume 2F: Commenter Identification List (EPA-453/R-94-003f).

Volume 2A is organized by emission point and contains discussions of specific technical issues related to process vents, storage vessels, transfer racks, and equipment leaks.

Volume 2A discusses specific technical issues such as control technology, cost analysis, emission estimates, Group 1/Group 2 determination, compliance options and demonstrations, and monitoring.

Volume 2B addresses issues related to controlling emissions from wastewater. Specific technical issues include control technology, cost analysis, emission estimates, Group 1/Group 2 determination, compliance options and demonstrations, and monitoring.

Volume 2C contains the EPA's decisions regarding emissions averaging. Specific issues include the scope of emissions averaging in the HON, specific provisions related to credits and banking, and enforcement of an emissions averaging system for the HON.

Volume 2D discusses applicability of the HON in terms of selection of source category, selection of source, and selection of pollutants. Volume 2D also addresses the process for determination of the MACT floor and selection of the specific applicability thresholds for process vents, storage vessels, transfer racks, wastewater operations, and equipment leaks.

Volume 2E discusses the provisions for compliance, recordkeeping and reporting. Volume 2E also discusses issues related to the use of EPA test methods.

Volume 2F of each volume contains a list of commenters, their affiliations, and the EPA docket and item number assigned to each comment.

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ACRONYM AND ABBRIEVIATION LIST

ACRONYM	TERM
Act	Clean Air Act
ALAPCO	Association of Local Air Pollution Control Officers
ASPEN	advanced system for process engineering
BACT	best available control technology
BAT	best available technology
BD	butadiene
BID	background information document
BIF	boilers and industrial furnaces
CEM	continuous emissions monitoring
CFR	Code of Federal Regulations
CMA	Chemical Manufacturers Association
CMPU	chemical manufacturing process unit
CO	carbon monoxide
CTG	control techniques guideline
CWA	Clean Water Act
DMS	dual mechanical seal
DOT	Department of Transportation
DRE	destruction and removal efficiency
EB/S	ethylbenzene/styrene
EDC	ethylene dichloride
EFR	external floating roof
EO	ethylene oxide
E.O.	Executive Order
EPA	Environmental Protection Agency
Fe	fraction emitted
Fm	fraction measured
FR	FEDERAL REGISTER
Fr	fraction removed
FTIR	Fourier transform infrared

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ACRONYM	TERM
HAP	hazardous air pollutant
HON	hazardous organic national emission standards for hazardous air pollutants
IFR	internal floating roof
LDAR	leak detection and repair
LAER	lowest achievable emission rate
MACT	maximum achievable control technology
MIBK	methyl isobutyl ketone
MR	mass removal (actual)
NCS	Notification of Compliance Status
NESHAP	national emission standards for hazardous air pollutants
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRDC	Natural Resources Defense Council
NSPS	new source performance standards
NSR	new source review
OCCM	Office of Air Quality Planning and Standards Control Cost Manual
OCPSF	organic chemicals, plastics, and synthetic fibers
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Administration
P.L.	Public Law
PAV	product accumulator vessel
POM	polycyclic organic matter
POTW	publicly owned treatment works
PRA	Paperwork Reduction Act
PRV	pressure relief valve

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ACRONYM	TERM
PSD	prevention of significant deterioration
QIP	quality improvement program
R & D	research and development
RCRA	Resource Conservation and Recovery Act
RCT	reference control technology
RIA	Regulatory Impact Analysis
RMR	required mass removal
SARA	Superfund Amendment and Reauthorization Act
SIP	State Implementation Plan
SMS	single mechanical seal
SOCMI	synthetic organic chemical manufacturing industry
STAPPA	State and Territorial Air Pollution Program Administrators
TAC	total annual cost
TACB	Texas Air Control Board
TCI	total capital investment
THC	total hydrocarbon
TIC	total industry control
TOC	total organic compound
TRE	total resource effectiveness
TRI	toxics release inventory
TSDF	treatment, storage, and disposal facility
VHAP	volatile hazardous air pollutant
VO	volatile organics measurable by Method 25D
VOC	volatile organic compound

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ACRONYM	TERM
VOHAP	volatile organic hazardous air pollutant

ABBREVIATION UNIT OF MEASURE	
bbl	barrel
BOE	barrels of oil equivalent
Btu	British thermal unit
Btu/kW-hr	British thermal unit per kilowatt-hour
^oC	degrees Celsius
^oF	degrees Fahrenheit
gal	gallon
gpm	gallons per minute
hr	hour
kg/hr	kilograms per hour
kPa	kilopascals
kW-hr/yr	kilowatt-hour per year
ℓ/hour•m^2	liters per hour per square meter
ℓpm	liters per minute
gal	gallons
m^3	cubic meters
Mg	megagrams
mg	milligrams
mg/dscm	milligram per dry standard cubic meter
MW	megawatts
ppb	parts per billion
ppm	parts per million
ppmv	parts per million by volume
ppmw	parts per million by weight
psia	pounds per square inch absolute

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ABBREVIATION
UNIT OF MEASURE

scm/min	standard cubic meter per minute
TJ	terajoules
yr	year

LIST OF FREQUENTLY USED TERMS

Act means the Clean Air Act as amended in 1990.

Administrator means the Administrator of the U. S. Environmental Protection Agency or his or her authorized representative (e.g., a State that has been delegated the authority to implement the provisions of part 63).

Enhanced monitoring rule means the rule to be located in sections 64.1 through 64.9 of part 64 of title 40 of the Code of Federal Regulations. This rule implements section 702(b) of title VII of the 1990 Clean Air Act Amendments. This rule establishes the criteria and procedures that owners or operators must satisfy in evaluating, selecting and demonstrating enhanced monitoring, and includes appendices containing enhanced monitoring performance and quality assurance requirements. The enhanced monitoring rule does not apply to sources subject to 40 CFR part 63, and therefore does not apply to sources subject to the HON. The proposed rule was published in the Federal Register on October 22, 1993 (58 FR 54648).

General Provisions means the general provisions located in subpart A of part 63 of title 40 of the Code of Federal Regulations. These General Provisions codify national emission standards for hazardous air pollutants (NESHAP) for source categories covered under section 112 of the Act as amended November 15, 1990.

Implementing agency means the Administrator of the U. S. Environmental Protection Agency or a State, federal, or other agency that has been delegated the authority to implement the provisions of part 63. Under section 112(l) of the Act,

States and localities may develop and submit to the Administrator for approval a program for the implementation and enforcement of emission standards. A program submitted by the State under section 112(l) of the Act may provide for partial or complete delegation of the Administrator's authorities and responsibilities to implement and enforce emission standards.

Operating permit program rule means the rule located in sections 70.1 through 70.11 of part 70 of chapter I of title 40 of the Code of Federal Regulations. This rule implements section 502(b) of title V of the 1990 Clean Air Act Amendments. Under this rule, States are required to develop, and to submit to the EPA, programs for issuing operating permits to major stationary sources (including major sources of hazardous air pollutants listed in section 112 of the Act), sources covered by New Source Performance Standards (NSPS), sources covered by emissions standards for hazardous air pollutants pursuant to section 112 of the Act, and affected sources under the acid rain program. The final rule was published in the Federal Register on July 21, 1992 (57 FR 32250).

Permitting authority means: (1) the State air pollution control agency, local agency, other State agency, or other agency authorized by the Administrator to carry out a permit program under part 70; or (2) the Administrator, in the case of EPA-implemented permit programs under part 71.

Section 112(g) rule means the rule to be located in subpart B of part 63 of title 40 of the Code of Federal Regulations. This rule implements section 112(g) of the 1990 Clean Air Act Amendments. This rule will impose control technology

requirements on "constructed, reconstructed or modified" major sources of hazardous air pollutants not already regulated by a section 112(d) or 112(j) MACT standard.

Section 112(l) rule means the rule located in subpart E of part 63 of title 40 of the Code of Federal Regulations. Under this rule, a State or locality may submit a program to the Administrator to request partial or complete delegation of the Administrator's authorities and responsibilities to implement and enforce section 112 emission standards. The final rule was published in the Federal Register on November 26, 1993 (58 FR 62262).

Title III means title III of the 1990 Clean Air Act Amendments. Section 112 of the Act authorizes the EPA to establish MACT standards.

Title V means title V of the 1990 Clean Air Act Amendments, which authorizes the EPA to establish the operating permit program.

Title VII means title VII of the 1990 Clean Air Act Amendments. Section 702(b) of the Act authorizes the EPA to establish compliance certification procedures. The part 64 enhanced monitoring rule implements section 702(b).

HAZARDOUS AIR POLLUTANT EMISSIONS FROM PROCESS UNITS IN THE SYNTHETIC ORGANIC CHEMICAL MANUFACTURING INDUSTRY-- BACKGROUND INFORMATION FOR PROMULGATED STANDARDS

Volume 2B: Comments on Wastewater

Emission Standards Division

U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

January 1994

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ENVIRONMENTAL PROTECTION AGENCY

Background Information and Final Environmental Impact Statement for Hazardous Air Pollutant Emissions from Process Units in the Synthetic Organic Chemical Manufacturing Industry
Volume 2B: Comments on Wastewater

Prepared by:

____________________________ ____________________
(Date)

Bruce Jordan
Director, Emission Standards Division
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Research Triangle Park, NC 27711

1. The standards regulate emissions of organic hazardous air pollutants (HAP's) emitted from chemical manufacturing process units in the Synthetic Organic Chemical Manufacturing Industry (SOCMI) and from other processes subject to the negotiated regulation for equipment leaks. Only those chemical manufacturing process units that are part of major sources under Section 112(d) of the Clean Air Act (Act) will be regulated. The standards will reduce emissions of 112 of the organic chemicals identified in the Act list of 189 HAP's.

2. Copies of this document have been sent to the following Federal Departments: Labor, Health and Human Services, Defense, Transportation, Agriculture, Commerce, Interior, and Energy; the National Science Foundation; and the Council on Environmental Quality. Copies have also been sent to members of the State and Territorial Air Pollution Program Administrators; the Association of Local Air Pollution Control Officials; EPA Regional Administrators; and other interested parties.

3. For additional information contact:

Dr. Janet Meyer
Standards Development Branch (MD-13)
U.S. Environmental Protection Agency
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4. Paper copies of this document may be obtained from:

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OVERVIEW

Emission standards under section 112(d) of the Clean Air Act (Act) apply to new and existing sources in each listed category of hazardous air pollutant (HAP) emission sources. This background information document (BID) provides summaries and responses for public comments received regarding the Hazardous Organic National Emission Standard for Hazardous Air Pollutants (NESHAP), commonly referred to as the HON. The HON will primarily affect the Synthetic Organic Chemical Manufacturing Industry (SOCMI). However, the provisions for equipment leaks also apply to certain polymer and resin production processes, certain pesticide production processes, and certain miscellaneous processes that are subject to the negotiated regulation for equipment leaks.

This BID comprises six volumes as follows:

- Volume 2A: Comments on Process Vents, Storage Vessels, Transfer Operations, and Equipment Leaks (EPA-453/R-94-003a);
- Volume 2B: Comments on Wastewater (EPA-453/R-94-003b);
- Volume 2C: Comments on Emissions Averaging (EPA-453/R-94-003c);
- Volume 2D: Comments on Applicability, National Impacts, and Overlap with Other Rules (EPA-453/R-94-003d);
- Volume 2E: Comments on Recordkeeping, Reporting, Compliance, and Test Methods (EPA-453/R-94-003e); and

- Volume 2F: Commenter Identification List (EPA-453/R-94-003f).

Volume 2A is organized by emission point and contains discussions of specific technical issues related to process vents, storage vessels, transfer operations, and equipment leaks. Volume 2A discusses specific technical issues such as control technology, cost analysis, emission estimates, Group 1/Group 2 determination, compliance options and demonstrations, and monitoring.

Volume 2B addresses issues related to controlling emissions from wastewater. Specific technical issues include control technology, cost analysis, emission estimates, Group 1/Group 2 determination, compliance options and demonstrations, and monitoring.

Volume 2C contains the EPA's decisions regarding emissions averaging. Specific issues include the scope of emissions averaging in the HON, specific provisions related to credits and banking, and enforcement of an emissions averaging system for the HON.

Volume 2D discusses applicability of the HON in terms of selection of source category, selection of source, and selection of pollutants. Volume 2D also addresses the process for determination of the MACT floor and selection of the specific applicability thresholds for process vents, storage vessels, transfer racks, wastewater operations, and equipment leaks.

Volume 2E discusses the provisions for compliance, recordkeeping and reporting. Volume 2E also discusses issues related to the use of EPA test methods.

Volume 2F of each volume contains a list of commenters, their affiliations, and the EPA docket and item number assigned to each comment.

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ACRONYM AND ABBRIEVIATION LIST

ACRONYM	TERM
Act	Clean Air Act
ALAPCO	Association of Local Air Pollution Control Officers
ASPEN	advanced system for process engineering
BACT	best available control technology
BAT	best available technology
BD	butadiene
BID	background information document
BIF	boilers and industrial furnaces
CEM	continuous emissions monitoring
CFR	Code of Federal Regulations
CMA	Chemical Manufacturers Association
CMPU	chemical manufacturing process unit
CO	carbon monoxide
CTG	control techniques guideline
CWA	Clean Water Act
DMS	dual mechanical seal
DOT	Department of Transportation
DRE	destruction and removal efficiency
EB/S	ethylbenzene/styrene
EDC	ethylene dichloride
EFR	external floating roof
EO	ethylene oxide
E.O.	Executive Order
EPA	Environmental Protection Agency
Fe	fraction emitted
Fm	fraction measured
FR	FEDERAL REGISTER
Fr	fraction removed
FTIR	Fourier transform infrared

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ACRONYM	TERM
HAP	hazardous air pollutant
HON	hazardous organic national emission standards for hazardous air pollutants
IFR	internal floating roof
LDAR	leak detection and repair
LAER	lowest achievable emission rate
MACT	maximum achievable control technology
MIBK	methyl isobutyl ketone
MR	mass removal (actual)
NCS	Notification of Compliance Status
NESHAP	national emission standards for hazardous air pollutants
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRDC	Natural Resources Defense Council
NSPS	new source performance standards
NSR	new source review
OCCM	Office of Air Quality Planning and Standards Control Cost Manual
OCPSF	organic chemicals, plastics, and synthetic fibers
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Administration
P.L.	Public Law
PAV	product accumulator vessel
POM	polycyclic organic matter
POTW	publicly owned treatment works
PRA	Paperwork Reduction Act
PRV	pressure relief valve

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ACRONYM	TERM
PSD	prevention of significant deterioration
QIP	quality improvement program
R & D	research and development
RCRA	Resource Conservation and Recovery Act
RCT	reference control technology
RIA	Regulatory Impact Analysis
RMR	required mass removal
SARA	Superfund Amendment and Reauthorization Act
SIP	State Implementation Plan
SMS	single mechanical seal
SOCMI	synthetic organic chemical manufacturing industry
STAPPA	State and Territorial Air Pollution Program Administrators
TAC	total annual cost
TACB	Texas Air Control Board
TCI	total capital investment
THC	total hydrocarbon
TIC	total industry control
TOC	total organic compound
TRE	total resource effectiveness
TRI	toxics release inventory
TSDF	treatment, storage, and disposal facility
VHAP	volatile hazardous air pollutant
VO	volatile organics measurable by Method 25D
VOC	volatile organic compound

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ACRONYM	TERM
VOHAP	volatile organic hazardous air pollutant

ABBREVIATION UNIT OF MEASURE	
bbl	barrel
BOE	barrels of oil equivalent
Btu	British thermal unit
Btu/kW-hr	British thermal unit per kilowatt-hour
^{o}C	degrees Celsius
^{o}F	degrees Fahrenheit
gal	gallon
gpm	gallons per minute
hr	hour
kg/hr	kilograms per hour
kPa	kilopascals
kW-hr/yr	kilowatt-hour per year
ℓ/hour•m^2	liters per hour per square meter
ℓpm	liters per minute
gal	gallons
m^3	cubic meters
Mg	megagrams
mg	milligrams
mg/dscm	milligram per dry standard cubic meter
MW	megawatts
ppb	parts per billion
ppm	parts per million
ppmv	parts per million by volume
ppmw	parts per million by weight
psia	pounds per square inch absolute

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ABBREVIATION
UNIT OF MEASURE

scm/min	standard cubic meter per minute
TJ	terajoules
yr	year

LIST OF FREQUENTLY USED TERMS

Act means the Clean Air Act as amended in 1990.

Administrator means the Administrator of the U. S. Environmental Protection Agency or his or her authorized representative (e.g., a State that has been delegated the authority to implement the provisions of part 63).

Enhanced monitoring rule means the rule to be located in sections 64.1 through 64.9 of part 64 of title 40 of the Code of Federal Regulations. This rule implements section 702(b) of title VII of the 1990 Clean Air Act Amendments. This rule establishes the criteria and procedures that owners or operators must satisfy in evaluating, selecting and demonstrating enhanced monitoring, and includes appendices containing enhanced monitoring performance and quality assurance requirements. The enhanced monitoring rule does not apply to sources subject to 40 CFR part 63, and therefore does not apply to sources subject to the HON. The proposed rule was published in the Federal Register on October 22, 1993 (58 FR 54648).

General Provisions means the general provisions located in subpart A of part 63 of title 40 of the Code of Federal Regulations. These General Provisions codify national emission standards for hazardous air pollutants (NESHAP) for source categories covered under section 112 of the Act as amended November 15, 1990.

Implementing agency means the Administrator of the U. S. Environmental Protection Agency or a State, federal, or other agency that has been delegated the authority to implement the provisions of part 63. Under section 112(l) of the Act,

States and localities may develop and submit to the Administrator for approval a program for the implementation and enforcement of emission standards. A program submitted by the State under section 112(l) of the Act may provide for partial or complete delegation of the Administrator's authorities and responsibilities to implement and enforce emission standards.

Operating permit program rule means the rule located in sections 70.1 through 70.11 of part 70 of chapter I of title 40 of the Code of Federal Regulations. This rule implements section 502(b) of title V of the 1990 Clean Air Act Amendments. Under this rule, States are required to develop, and to submit to the EPA, programs for issuing operating permits to major stationary sources (including major sources of hazardous air pollutants listed in section 112 of the Act), sources covered by New Source Performance Standards (NSPS), sources covered by emissions standards for hazardous air pollutants pursuant to section 112 of the Act, and affected sources under the acid rain program. The final rule was published in the Federal Register on July 21, 1992 (57 FR 32250).

Permitting authority means: (1) the State air pollution control agency, local agency, other State agency, or other agency authorized by the Administrator to carry out a permit program under part 70; or (2) the Administrator, in the case of EPA-implemented permit programs under part 71.

Section 112(g) rule means the rule to be located in subpart B of part 63 of title 40 of the Code of Federal Regulations. This rule implements section 112(g) of the 1990 Clean Air Act Amendments. This rule will impose control technology

requirements on "constructed, reconstructed or modified" major sources of hazardous air pollutants not already regulated by a section 112(d) or 112(j) MACT standard.

Section 112(l) rule means the rule located in subpart E of part 63 of title 40 of the Code of Federal Regulations. Under this rule, a State or locality may submit a program to the Administrator to request partial or complete delegation of the Administrator's authorities and responsibilities to implement and enforce section 112 emission standards. The final rule was published in the Federal Register on November 26, 1993 (58 FR 62262).

Title III means title III of the 1990 Clean Air Act Amendments. Section 112 of the Act authorizes the EPA to establish MACT standards.

Title V means title V of the 1990 Clean Air Act Amendments, which authorizes the EPA to establish the operating permit program.

Title VII means title VII of the 1990 Clean Air Act Amendments. Section 702(b) of the Act authorizes the EPA to establish compliance certification procedures. The part 64 enhanced monitoring rule implements section 702(b).

HAZARDOUS AIR POLLUTANT EMISSIONS FROM PROCESS UNITS IN THE SYNTHETIC ORGANIC CHEMICAL MANUFACTURING INDUSTRY-- BACKGROUND INFORMATION FOR PROMULGATED STANDARDS

Volume 2C: Comments on Emissions Averaging

Emission Standards Division

U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

January 1994

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Volume 2C: Comments on Emissions Averaging

Prepared by:

________________________________ ______________________
(Date)

Bruce Jordan
Director, Emission Standards Division
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

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CWA	Clean Water Act
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EDC	ethylene dichloride
EFR	external floating roof
EO	ethylene oxide
E.O.	Executive Order
EPA	Environmental Protection Agency
Fe	fraction emitted
Fm	fraction measured
FR	FEDERAL REGISTER
Fr	fraction removed
FTIR	Fourier transform infrared

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ACRONYM	TERM
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HON	hazardous organic national emission standards for hazardous air pollutants
IFR	internal floating roof
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MACT	maximum achievable control technology
MIBK	methyl isobutyl ketone
MR	mass removal (actual)
NCS	Notification of Compliance Status
NESHAP	national emission standards for hazardous air pollutants
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRDC	Natural Resources Defense Council
NSPS	new source performance standards
NSR	new source review
OCCM	Office of Air Quality Planning and Standards Control Cost Manual
OCPSF	organic chemicals, plastics, and synthetic fibers
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Administration
P.L.	Public Law
PAV	product accumulator vessel
POM	polycyclic organic matter
POTW	publicly owned treatment works
PRA	Paperwork Reduction Act
PRV	pressure relief valve

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ACRONYM	TERM
PSD	prevention of significant deterioration
QIP	quality improvement program
R & D	research and development
RCRA	Resource Conservation and Recovery Act
RCT	reference control technology
RIA	Regulatory Impact Analysis
RMR	required mass removal
SARA	Superfund Amendment and Reauthorization Act
SIP	State Implementation Plan
SMS	single mechanical seal
SOCMI	synthetic organic chemical manufacturing industry
STAPPA	State and Territorial Air Pollution Program Administrators
TAC	total annual cost
TACB	Texas Air Control Board
TCI	total capital investment
THC	total hydrocarbon
TIC	total industry control
TOC	total organic compound
TRE	total resource effectiveness
TRI	toxics release inventory
TSDF	treatment, storage, and disposal facility
VHAP	volatile hazardous air pollutant
VO	volatile organics measurable by Method 25D
VOC	volatile organic compound

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ACRONYM	TERM
VOHAP	volatile organic hazardous air pollutant

ABBREVIATION UNIT OF MEASURE	
bbl	barrel
BOE	barrels of oil equivalent
Btu	British thermal unit
Btu/kW-hr	British thermal unit per kilowatt-hour
^oC	degrees Celsius
^oF	degrees Fahrenheit
gal	gallon
gpm	gallons per minute
hr	hour
kg/hr	kilograms per hour
kPa	kilopascals
kW-hr/yr	kilowatt-hour per year
ℓ/hour•m^2	liters per hour per square meter
ℓpm	liters per minute
gal	gallons
m^3	cubic meters
Mg	megagrams
mg	milligrams
mg/dscm	milligram per dry standard cubic meter
MW	megawatts
ppb	parts per billion
ppm	parts per million
ppmv	parts per million by volume
ppmw	parts per million by weight
psia	pounds per square inch absolute

ACRONYM AND ABBRIEVIATION LIST, CONTINUED

ABBREVIATION	UNIT OF MEASURE
scm/min	standard cubic meter per minute
TJ	terajoules
yr	year

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Enhanced monitoring rule means the rule to be located in sections 64.1 through 64.9 of part 64 of title 40 of the Code of Federal Regulations. This rule implements section 702(b) of title VII of the 1990 Clean Air Act Amendments. This rule establishes the criteria and procedures that owners or operators must satisfy in evaluating, selecting and demonstrating enhanced monitoring, and includes appendices containing enhanced monitoring performance and quality assurance requirements. The enhanced monitoring rule does not apply to sources subject to 40 CFR part 63, and therefore does not apply to sources subject to the HON. The proposed rule was published in the Federal Register on October 22, 1993 (58 FR 54648).

General Provisions means the general provisions located in subpart A of part 63 of title 40 of the Code of Federal Regulations. These General Provisions codify national emission standards for hazardous air pollutants (NESHAP) for source categories covered under section 112 of the Act as amended November 15, 1990.

Implementing agency means the Administrator of the U. S. Environmental Protection Agency or a State, federal, or other agency that has been delegated the authority to implement the provisions of part 63. Under section 112(l) of the Act,

States and localities may develop and submit to the Administrator for approval a program for the implementation and enforcement of emission standards. A program submitted by the State under section 112(l) of the Act may provide for partial or complete delegation of the Administrator's authorities and responsibilities to implement and enforce emission standards.

Operating permit program rule means the rule located in sections 70.1 through 70.11 of part 70 of chapter I of title 40 of the Code of Federal Regulations. This rule implements section 502(b) of title V of the 1990 Clean Air Act Amendments. Under this rule, States are required to develop, and to submit to the EPA, programs for issuing operating permits to major stationary sources (including major sources of hazardous air pollutants listed in section 112 of the Act), sources covered by New Source Performance Standards (NSPS), sources covered by emissions standards for hazardous air pollutants pursuant to section 112 of the Act, and affected sources under the acid rain program. The final rule was published in the Federal Register on July 21, 1992 (57 FR 32250).

Permitting authority means: (1) the State air pollution control agency, local agency, other State agency, or other agency authorized by the Administrator to carry out a permit program under part 70; or (2) the Administrator, in the case of EPA-implemented permit programs under part 71.

Section 112(g) rule means the rule to be located in subpart B of part 63 of title 40 of the Code of Federal Regulations. This rule implements section 112(g) of the 1990 Clean Air Act Amendments. This rule will impose control technology

requirements on "constructed, reconstructed or modified" major sources of hazardous air pollutants not already regulated by a section 112(d) or 112(j) MACT standard.

Section 112(l) rule means the rule located in subpart E of part 63 of title 40 of the Code of Federal Regulations. Under this rule, a State or locality may submit a program to the Administrator to request partial or complete delegation of the Administrator's authorities and responsibilities to implement and enforce section 112 emission standards. The final rule was published in the Federal Register on November 26, 1993 (58 FR 62262).

Title III means title III of the 1990 Clean Air Act Amendments. Section 112 of the Act authorizes the EPA to establish MACT standards.

Title V means title V of the 1990 Clean Air Act Amendments, which authorizes the EPA to establish the operating permit program.

Title VII means title VII of the 1990 Clean Air Act Amendments. Section 702(b) of the Act authorizes the EPA to establish compliance certification procedures. The part 64 enhanced monitoring rule implements section 702(b).

TABLE 6-2. OVERLAP FOR HON GROUP 1 EMISSION POINTS[1]

Emission Point	Overlapping Regulation	Compliance Requirement
Storage Tanks	VOL Storage NSPS (40 CFR part 60 subpart Kb)	HON
	Benzene Storage NESHAP (40 CFR part 61 subpart Y)	HON
Transfer Operations	Benzene Transfer NESHAP (40 CFR part 61 subpart BB)	HON
Process Vents	Air oxidation NSPS (40 CFR part 60 subpart III)	HON[2]
	Distillation NSPS (40 CFR part 60 subpart NNN)	HON[2]
	Reactor NSPS (40 CFR part 60 subpart RRR)	HON[2]
	Vinyl Chloride NESHAP (40 CFR part 61 subpart F)	HON[2]
Wastewater Streams	Benzene Waste NESHAP (40 CFR part 61 subpart FF)	HON and Benzene Waste NESHAP
	Vinyl Chloride NESHAP (40 CFR part 61 subpart F)	see table 6-4
	RCRA (40 CFR parts 260 through 272)	see table 6-4

1 The requirements specified in this table are applicable only after the compliance dates specified in §63.100(k) of the final HON.

2 Also, the HON provisions (rather than the NSPS or vinyl chloride NESHAP provisions) apply if owners or operators of process vents subject to the HON elect to control process vents to the levels specified in §63.113(a)(1) or (a)(2) of subpart G without determining whether the vent is Group 1 or Group 2.

TABLE 6-3. OVERLAP FOR HON GROUP 2 EMISSION POINTS[1]

Emission Point	Overlapping Regulation	Compliance Requirement
Storage Operations	VOL Storage NSPS (40 CFR part 60 subpart Kb)	HON
	Benzene Storage NESHAP (40 CFR part 61 subpart Y)	Benzene Storage NESHAP
Transfer Operations	Benzene Transfer NESHAP (40 CFR part 61 subpart BB)	(1) For racks subject to control requirements of §61.302 of Benzene Transfer NESHAP, comply with control requirements of Benzene Transfer. Comply with either the testing, monitoring, recordkeeping, and reporting of the Benzene Transfer NESHAP <u>or</u> those for HON Group 1 transfer racks. (2) For racks not subject to control requirements of §61.302 of the Benzene Transfer NESHAP, comply only with HON requirements for Group 2 transfer racks.
	Vinyl Chloride NESHAP (40 CFR part 61 subpart F)	see table 6-4

TABLE 6-3. OVERLAP FOR HON GROUP 2 EMISSION POINTS[1] (CONTINUED)

Emission Point	Overlapping Regulation	Compliance Requirement
Process Vents	Air oxidation NSPS (40 CFR part 60 subpart III)	For TRE ≤ 1 as determined by the procedures in 40 CFR part 60 subpart III, comply with: (1) Provisions of the HON and the NSPS for applicability determination and associated recordkeeping and reporting, and (2) Provisions of the HON and the NSPS for process changes; TRE recalculation, and associated recordkeeping and reporting, and (3) Control requirements of §60.612 of the NSPS. Comply with either the control device testing, monitoring, and reporting requirements of the NSPS <u>or</u> those for HON group 1 process vents. For TRE > 1 as determined by the procedures in 40 CFR part 60 subpart III, comply with: (1) Provisions of the HON and the NSPS for applicability determination and the associated recordkeeping and reporting, and (2) Provisions of the HON and the NSPS for process changes, TRE recalculations, and associated recordkeeping and reporting, and (3) If only the NSPS requires continuous monitoring of recovery devices comply with NSPS monitoring and associated recordkeeping and reporting. (4) If both the HON and the NSPS require recovery device monitoring, comply with only the HON recovery device monitoring and associated recordkeeping and reporting.

TABLE 6-3. OVERLAP FOR HON GROUP 2 EMISSION POINTS[1] (CONTINUED)

Emission Point	Overlapping Regulation	Compliance Requirement
Process Vents (continued)	Distillation NSPS (40 CFR part 60 subpart NNN)	For TRE $\leq$ 1 as determined by the procedures in 40 CFR part 60 subpart NNN, comply with: (1) Provisions of the HON and the NSPS for applicability determination and associated recordkeeping and reporting, and (2) Provisions of the HON and the NSPS for process changes; TRE recalculation, and associated recordkeeping and reporting, and (3) Control requirements of §60.662 of the NSPS. Comply with either the control device testing, monitoring, and reporting requirements of the NSPS <u>or</u> those for HON group 1 process vents. For TRE > 1 as determined by the procedures in 40 CFR part 60 subpart NNN comply with: (1) Provisions of the HON and the NSPS for applicability determination and the associated recordkeeping and reporting, and (2) Provisions of the HON and the NSPS for process changes, TRE recalculations, and associated recordkeeping and reporting, and (3) If only the NSPS requires continuous monitoring of recovery devices comply with NSPS monitoring and associated recordkeeping and reporting. (4) If both the HON and the NSPS require recovery device monitoring, comply with only the HON recovery device monitoring and associated recordkeeping and reporting.

TABLE 6-3. OVERLAP FOR HON GROUP 2 EMISSION POINTS[1] (CONCLUDED)

Emission Point	Overlapping Regulation	Compliance Requirement
Process Vents (continued)	Reactor NSPS (40 CFR part 60 subpart RRR)	For TRE ≤ 1 as determined by the procedures in 40 CFR part 60 subpart RRR, comply with: (1) Provisions of the HON and the NSPS for applicability determination and associated recordkeeping and reporting, and (2) Provisions of the HON and the NSPS for process changes; TRE recalculation, and associated recordkeeping and reporting, and (3) Control requirements of §60.702 of the NSPS. Comply with either the control device testing, monitoring, and reporting requirements of the NSPS <u>or</u> those for HON group 1 process vents. For TRE > 1 as determined by the procedures in 40 CFR part 60 subpart RRR, comply with: (1) Provisions of the HON and the NSPS for applicability determination and the associated recordkeeping and reporting, and (2) Provisions of the HON and the NSPS for process changes, TRE recalculations, and associated recordkeeping and reporting, and (3) If only the NSPS requires continuous monitoring of recovery devices comply with NSPS monitoring and associated recordkeeping and reporting. (4) If both the HON and the NSPS require recovery device monitoring, comply with only the HON recovery device monitoring and associated recordkeeping and reporting.
	Vinyl Chloride NESHAP (40 CFR part 61 subpart F)	If the vent is controlled by a combustion device to meet the vinyl chloride NESHAP, comply with either the control device testing, monitoring, recordkeeping, and reporting requirements of the vinyl chloride NESHAP or those for HON group 1 process vents. If the vent is not controlled by a combustion device, comply with both the vinyl chloride NESHAP and the HON provisions for group 2 process vents.
Wastewater Streams	Benzene Waste NESHAP (40 CFR part 61 subpart FF)	Benzene Waste NESHAP and HON
	Vinyl Chloride NESHAP (40 CFR part 61 subpart F)	see table 6-4

TABLE 6-3. OVERLAP FOR HON GROUP 2 EMISSION POINTS[1] (CONCLUDED)

Emission Point	Overlapping Regulation	Compliance Requirement
	RCRA (40 CFR parts 260 through 272)	see table 6-4

1 The requirements specified in this table are applicable only after the compliance dates specified in §63.100(k) of the final HON.

TABLE 6-4. OVERLAP FOR HON GROUP 1 OR GROUP 2 EMISSION POINTS[1]

Emission Point	Overlapping Regulation	Compliance Requirement
Wastewater Streams	RCRA (40 CFR parts 260 through 272)	(1) Comply with the more stringent requirements and keep a record of information used to make stringency determination, or (2) Submit as part of the Implementation Plan or operating permit application a request for a case-by-case determination of requirements.
Wastewater Streams	Vinyl Chloride NESHAP (40 CFR part 61 subpart FF)	(1) Comply with both the HON and the Vinyl Chloride NESHAP, or (2) Submit as part of the Implementation Plan or operating permit application information demonstrating that compliance with the Vinyl Chloride NESHAP will assure compliance with the HON.

1 The requirements specified in this table are applicable only after the compliance dates specified in §63.100(k) of the final HON.